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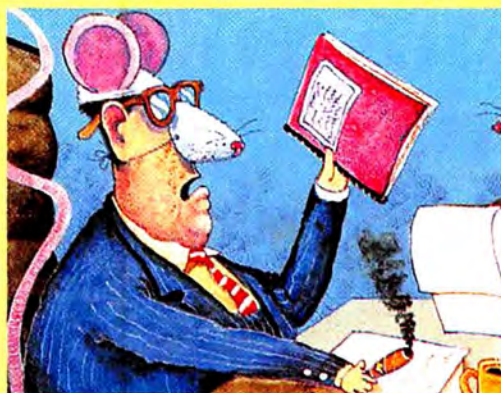
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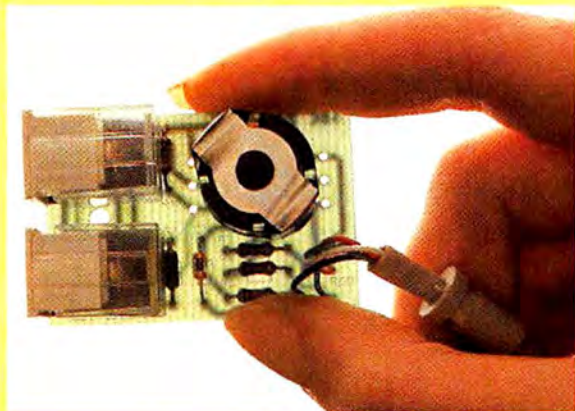
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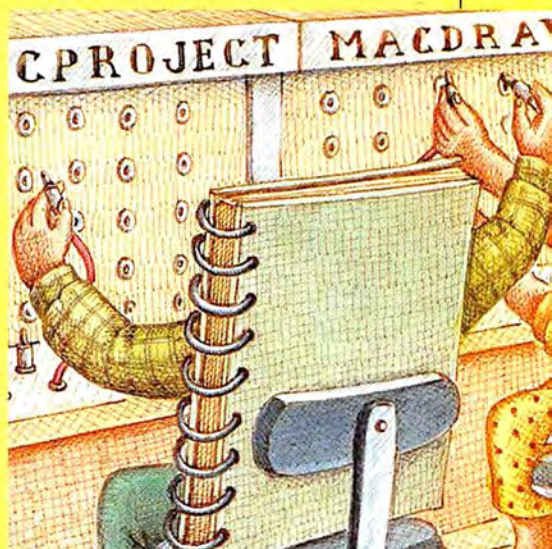
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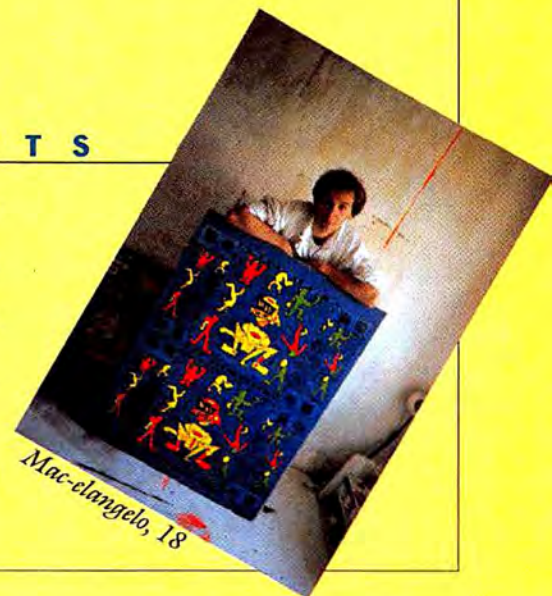
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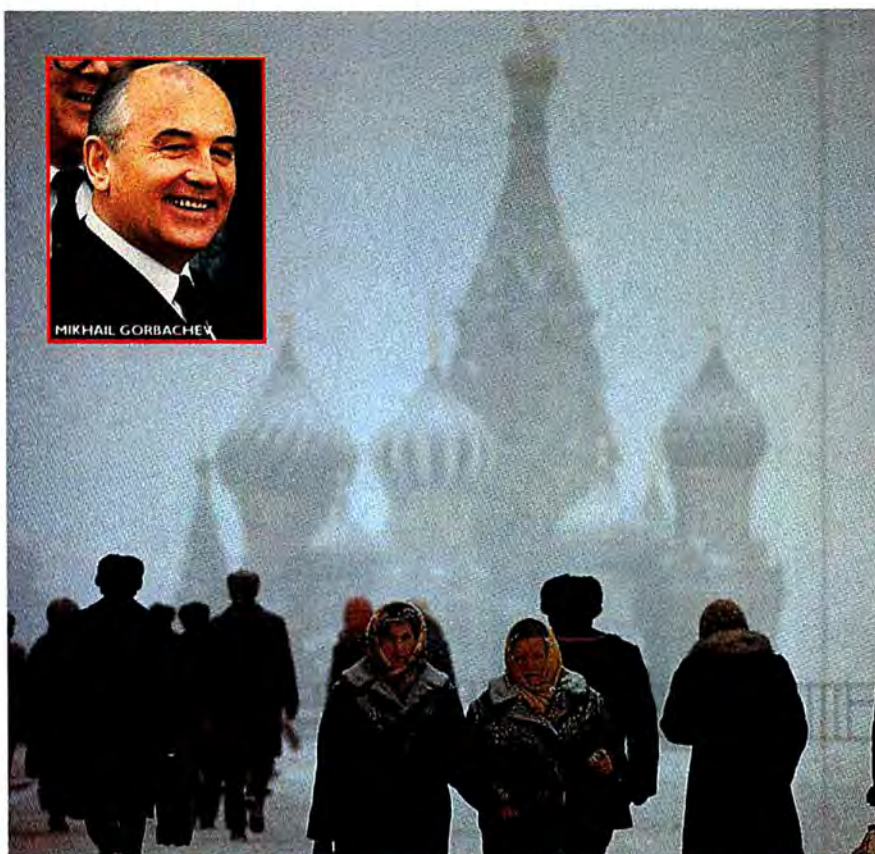
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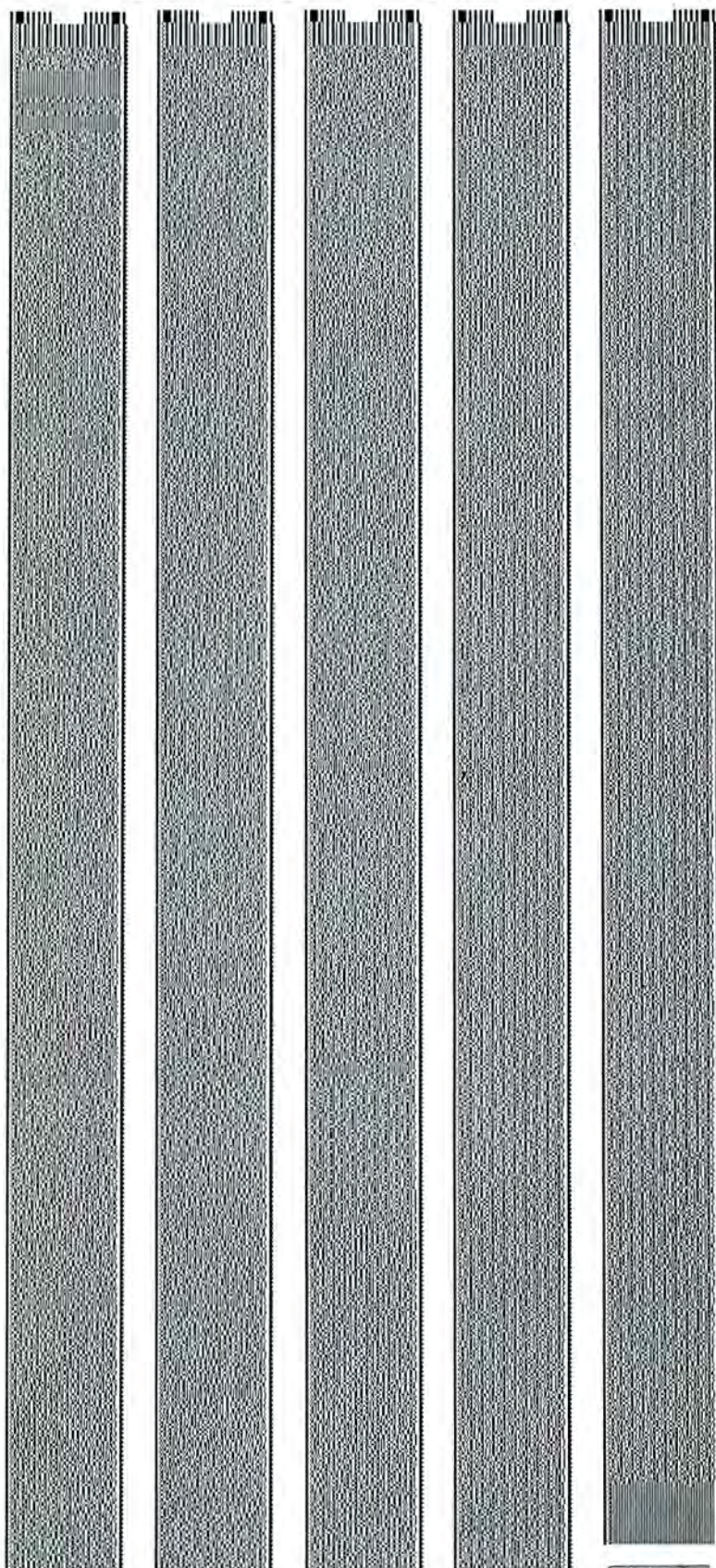
Whichever method you select, the program records your lines, interprets all the hexagrams, and then interprets your casting.

Finally the program will produce a summary page. This allows you to consult the text of the I CHING at your leisure.

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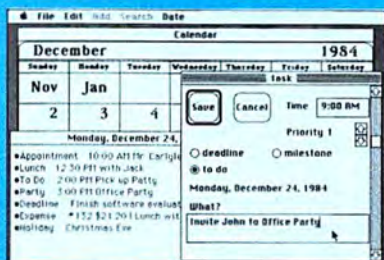
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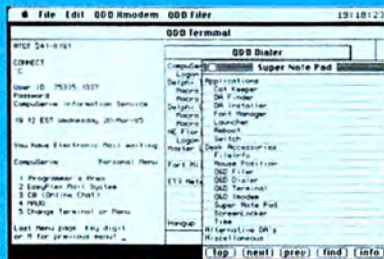
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BY NEIL L. SHAPIRO

TO THE BARRICADES —AGAIN

I missed out on the beginning of the first computer revolution. By the time I became interested in microcomputers the battle lines had already been drawn.

Pioneers such as Steve Wozniak and Lee Felsenstein had already fired the opening cannonades against the silicon-jacketed towers of the corporate computer establishment. The idea of bringing computer power from out of the hands of an almost mystical, elite priesthood and into homes and small offices was already well under way by the time I got my hands on my own first microcomputer in 1976.

Still, the excitement lingered for years as the microcomputer field began to turn into a consumer field. Then, with the advent of the IBM PC, things seemed to come full circle. A lot of the excitement died away and in many corporations the same type of mentality that had once been overthrown was, again, on the rise.

Then came the Mac!

I think many people reading this will agree that the Macintosh started something new—fired the first shot in a new round of battles.

But what many people don't see is that the Macintosh is not the latest salvo in the ongoing computer revolution. It is, the beginning of a new revolution.

COMRADE AMIGA?

The Amiga, the Atari ST, the rumored new machines from other companies—all make one thing clear: The Macintosh interface of windows, mice and intuitive and iconographic commands have forever changed the way people will compute.

Yet, there is one thing missing from this computer revolution which characterized the last one. A spirit of, if not teamwork, then at least a definite "we're all in this together" feeling.

Maybe it was because the early microcomputers were designed, built and marketed by people who belonged to the same clubs, had the same acquaintances

and shared many of the same dreams. It was not unusual to see presidents of various companies get together at computer shows to compare and share technological advances.

While many computer owners all believed that their own particular computer brand was fantastic they all shared certain other beliefs. For example, they all felt like they were shaping the future, that the way computers could and should be used was still in their own hands.

Now that Apple, Commodore, Atari and other companies are spending so many zillions of dollars on full-color ads, TV commercials, and corporate hoopla, one fact is getting harder and harder to



see. When it comes to The Desktop Metaphor we are all in this together.

TOGETHER ON THE DESKTOP

I've been saying ever since the first day I saw a Macintosh that this is how computers should and *will* work. Lots of people have said that. But how many of us really understood what it meant?

It means that everyone familiar with The Desktop Metaphor should close ranks and work together—through everything from buying habits to educating friends—to see that the Day of The Desktop has truly dawned and that we will never see primitive MS-DOS style computers MS-tify and MS-lead people away from the neatness and beauty of the on-screen desktop.

There are many things about the Desktop Metaphor as practiced on the Amiga and the Atari ST that I personally think the Mac Team got better on the first try. But we cannot afford to lose track of, and to applaud, the fact that these new machines show that the Macintosh has succeeded in setting a new standard and starting a new revolution.

I hope that software designers will

realize that by using the Desktop Metaphor on computer systems that share this insight, they can reach a whole new—larger than ever—audience. For example, the new *Microsoft MS-BASIC* for the Amiga shares many of the command structures and keywords found in that company's *MS-BASIC* for the Mac.

This means that I can sit down and write a program for the Amiga and the Mac that share almost identical source code. Just as long as the program I am doing doesn't need any of the machines' special features, I am home free.

If I want to open three windows at various parts of the screen on both machines—I can do it. If I want to check for a mousedown condition on each—I can do it. If I want to draw a circle in the center of each screen—I can do that too.

I hope that other languages such as Pascal and C will follow along in this manner. Each language will, of course, offer many commands on one machine that are not available on the other in order to reflect the different capabilities of the hardware. But it seems to me very exciting that developers can now look forward to writing programs for people like you and me who are comfortable with icons and plastic rodents on more than one machine.

By no means am I saying that the Mac and the Amiga and the Atari ST should or could become software compatible. But there are many cases where they can share the same sort of style. We, the style-setters of the microcomputer world, have to demand that programs are cut to fit our needs.

BROADSIDES

I picked up a few of the new magazines devoted to the Amiga and Atari ST computers. And, while this was not true of all the publications, the majority of them included numerous cheap shots against the Macintosh (and often against other Desktop Metaphor computers).

The comments were all brusque, off-the-cuff and seemed to me to be rather odd to include in such things as articles rather than editorials (if even there). Why, I wondered, did the editors of those publications go so far out of their way to be abusive in their handling of other computers?

Finally, I realized that the editors must have felt that the large corporate wars going on between major computer manufacturers at the retail level had to be translated into battles at the readership level. By recruiting the "troops" they could build circulation.

I suppose I tend to take a longer view. Maybe it is because I have enough

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confidence in Apple "winning" and surviving that I can feel this way.

But I think that all of us involved in this new revolution should look at where the real battlefield is—we should all recognize our responsibility to act as something other than puppets.

It is time to sound the death knell of the computers that demand people to think like a computer to use them.

It is time that we all recognized that the enemy is not the fellow down the street who bought an Amiga, but it is the buyer who bought 300 IBM PCs for his company because he has Peter Principled himself into a position wherein he will not bring the Desktop to his workers.

The future is in our hands.

OTHER FUTURES

I have to change the subject here and say that I am feeling pretty badly about another matter. To understand my feeling better, let me preface this by saying that I am writing these words a few short weeks before the Christmas/Chanukah holidays. I'd like to feel it is a time that everyone can enjoy.

Unfortunately, I've had four or five depressing communications from good friends who are less than joyful at the New Year's prospects. These are people who have worked for Apple and other large computer companies and were caught in the crunch.

They feel more than a little betrayed. A common thread to the letters (and I am sure that none knew the others were contacting me) is that they started working at Apple when Apple was only a vision, and that they shared this vision through times when it seemed that even the corporation itself was losing some sight of where it was headed.

It's easy to say that business is business and as these are all extremely qualified individuals, they should be able to find work elsewhere, as they probably all will. Still, it raises a very interesting problem: What are the responsibilities of a company like Apple?

I for one hope that such companies never lose sight of the fact that they were built by teamwork. I hope that, in the future, more attention and corporate funding can be delegated toward seeing that people who have worked hard for a team can be helped to find other homes.

ANOTHER FUTURE

Just to end on an up-note: I was a very proud Daddy the other day when my two-year old daughter looked straight at a bowl of red fruit, laughed and said, "Computers, Daddy!" She may be confused but she's awful cute....

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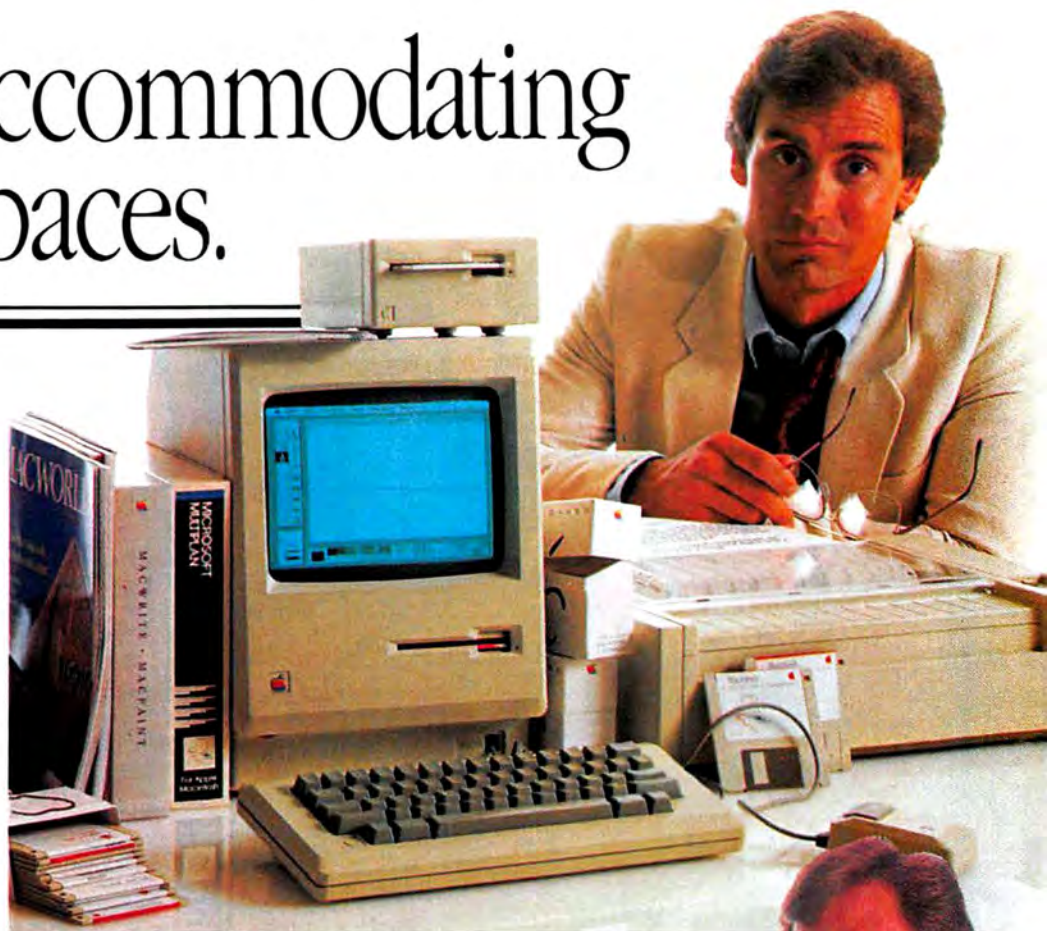
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*See MacUser's review in no-holds-barred Mnfinders Dept.

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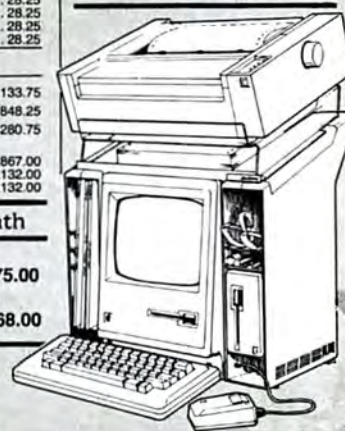
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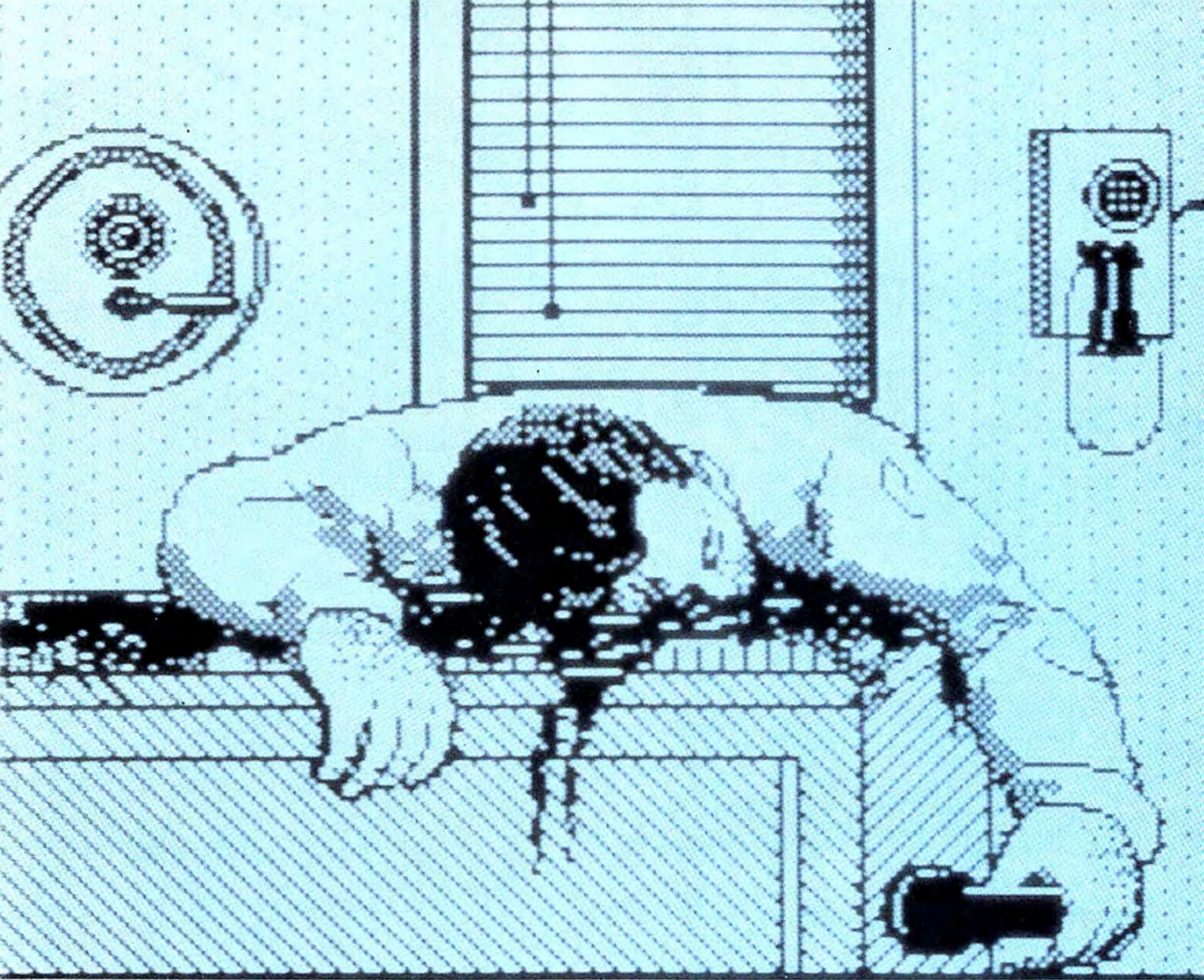
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Do you have a question or comment about MacUser? Address it to: Letters to the Editor, MacUser Magazine, 25 W. 39th St., New York, NY 10018. We reserve the right to edit all published correspondence.

DVORAK, YOU "READ" DEVIL

I have become increasingly disenchanted with those other magazines because of their lack of practical information concerning product reviews and applications for the Mac.

Your articles are both informative and entertaining. You also seem to have struck a good balance between reporting on the serious and not so serious aspects of being a Mac user.

It is also very refreshing to have a Devil's Advocate column. The constant self-congratulatory tone of the other Mac mags is boring and unrealistic. Not everyone could possibly have the intelligence and good taste to love the Mac as much as I do. Sorry John, I had to get that in.

Bruce E. Selzler
Redlands, CA

NO "HARD" KNOCKS

Thank you for the great review of *Sidekick*. However, two statements were misleading and incorrect.

First, regarding *Sidekick's* desk accessories, the article states that "you won't be able to use even a single one of them" without a hard disk. Although a hard disk allows *Sidekick* to work at its best, *Sidekick* will work very well with a two-drive Macintosh system.

Sidekick for the Macintosh can be very convenient to use on a two-drive system with the following setup: a master system disk with *System*, *Finder*, printer driver, *Sidekick* desk accessories, fonts and data files, and several application disks (without system folders) with application programs and their data files.

Even if you don't have room for the *Sidekick* data files on a two-drive system, *Sidekick* will prompt you to insert the disk containing the required files when you select a desk accessory. This scheme allows you the benefits of running complex desk accessories without paying the cost of keeping the code and data files for *Sidekick* on every system disk.

Second, the article stated that the RediPrinter accessory "won't work at all with the LaserWriter." All of *Sidekick's*

applications and accessories including RediPrinter work with Apple's LaserWriter.

We like some of the configuration and installation suggestions, and will consider them in future versions of our manual. As always Borland continually improves and evolves its products to reflect user requests and needs.

David Intersimone
Director, Product Services
Borland International

The RediPrinter does indeed work with the LaserWriter. It is fast and efficient. It did not work in initial tests due to an installation error, caused by our misinterpretation of the instructions in the manual.—SB

I take exception with the overall comments made by Aker and Bobker in the December 1985 article "Corralling your Desk Accessories" regarding the *Sidekick* collection of Desk Accessories. While I fully understand that an external drive is essential to the smooth operation of some of the accessories, I do not agree that a hard disk is necessary... "to be able to use a single one of them." Far more essential than a hard disk is a little touch of organization.

Simply select one activity that is clearly a daily routine and set up the Calendar-Book on that disk with both DeskStuff and Calendar File on the external drive. Organize yourself to keep your calendar updated during your word processing activities. I hope my love affair with my Mac forces me to have so many months and years of data that I am forced to buy a hard disk to store that massive calendar file. I know that year 2025 will handle all of my future planning.

Great start with your "slick"—keep your focus on the balancing act needed to keep most of us happy.

Larry Jacober
Carbondale, IL

THE RATING GAME

I have a peeve that I just have to get off my chest. Being a rather new Macintosh user without any time to write my own code, I am forced to use software written by others. In *MacUser's* December MiniFinder section, 195 programs were reviewed. Over 60% of the programs reviewed received more than 3 mice. Only 10% were rated 2 mice or lower. If the state of Macintosh software

was as great as indicated by your generous reviews, then Apple and the Macintosh would be on top of the world.

Macintosh supporters, like myself, are relying heavily on magazines like *MacUser* to direct our software purchases. 4 & 5 mice ratings should be given out with extreme care. Only those programs that do indeed utilize the true power of the Mac deserve 5 mice ratings. In the future, please take care when placing a rating on a piece of software. Many of us readers are counting on you to lead us into tomorrow.

G.D. Thurman
Phoenix, AZ

Of the great deal of Mac software now available, MacUser carries more evaluations of software than all other Mac magazines combined. Even so, limitation of space means we must leave a great deal out. Guess what, we don't tend to leave out the good stuff, thus the preponderance of 3-, 4- and 5-mice ratings.—FD



MIXED SIGNALS ON MACDRAFT

You guys can't seem to reach an agreement concerning the quality of *MacDraft*. On page 36 of the December 1985 issue it is given a rating of three mice and described as a "good program that needs a bit more work."

On page 130 of this same issue, however, *MacDraft* has a five mouse rating and is referred to as "a professional level product." Just how good is this thing, anyway?

Charles D. Poe
Houston, TX

The five mouse rating was based on a few hours work with the program. Since then, we have received and verified quite a few reports of problems. We always reserve the right to change our opinions, especially in light of new facts. In this case, we failed to update the MiniFinder review and we apologize for any confusion caused.—SB

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A "SAVE" IN TIME...

I have read your article "A Dip Into the ROM" (pg. 108, November) with great interest.

On pg. 110, you demonstrate how to program a SAVE BOX with MS BASIC. It seems to work fine, however, it requires keyboard entry to type in the name of the file. I would prefer to have the existing name appear in the box to "save" retyping. Is there a way to accomplish this so that all that would be required, would be to "click on" the SAVE prompt and an updated version would now be saved?

Norm Friedman

Scarborough, NY

BASIC doesn't let you define a default string for the Save Box. If the programmer already "knows" the filename, you can avoid some unnecessary typing.

Let the user choose between a "Save" and a "Save As" before you use the FILE\$ string function; if "Save" is chosen use a current filename for the "Save" routine and branch to the file function only in the "Save As" situation.—Sharon Zardetto Aker

...TRY, TRY AGAIN

I am sick and tired of buying Macintosh software, only to find out another version of that software is on its way. It seems, that this is only so for Macintosh software. If the software isn't good enough at first, why put it out?

Loretta Weinberg
Columbus, OH

THE WRITE STUFF

Like so many others, I am having a love affair with a machine. I adore my Macintosh, which is proving to be a valuable tool for so many of my needs.

As a researcher, however, I am frustrated at not having identified an appropriate means for organizing large amounts of narrative data in a freeform database, and integrating these files with word processing. How about a review article and ongoing coverage of Mac software for writers, journalists, academics, researchers and others who need to store, sort, retrieve and write up large amounts of information?

Despite my affiliation with a consortium school, I am having difficulty getting help in this area. Help! I'm swimming in notecards, scraps of paper, newspaper clippings and other media that are crying for integration.

Carol Sakala
Alpine, UT

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Mac Underground is a nationwide network of "SafeHouses" that supply serious Mac users with outrageous industry info and state-of-the-art equipment. You reach the Underground using a 300/1200 or 2400 baud, Hayes-compatible modem.

The content of our daily and weekly reports—coupled with the low cost of our hardware—has made dealers and suppliers take frequent trips to their restrooms.

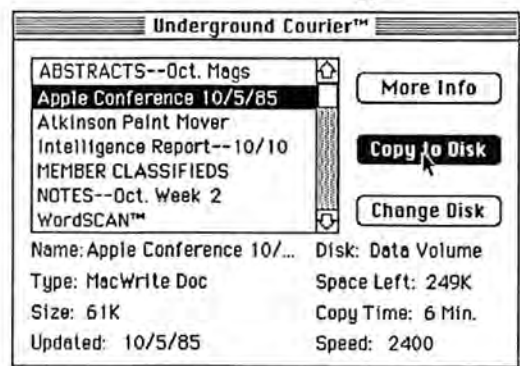


"Mac Underground is a unique organization, founded and run by honest, friendly, straight-ahead people. Highly recommended!"

Doug Clapp and Pat Ryall from *The Complete Macintosh Sourcebook*.

"The Mac Underground is a sociological footnote to the technological revolution."—Marc Halberstadt, Publicist with *Antic Magazine*.

No. 2--To Use Underground Courier™ Software



Underground members use Courier to make modem contact with a SafeHouse.

Once inside a SafeHouse, members can copy choice public domain programs, in-house software, weekly and daily intelligence reports all over the phone.

Courier also represents a landmark in telecommunications. It requires no typing or prior knowledge of teletype jargon—just pointing and clicking!

"Un-bleepin' believable!!! Courier is a BLAST!! Better than you said it would be."—John Patrick Russell, Computer Island

"This could become THE standard in telecommunications." Mel Beckman, Senior Programmer at Pace Financial—an IBM VAR.

A \$39.95 One-Year Membership Includes:

- Courier software that lets you copy Underground files over the phone!
 - Daily Intelligence Reports covering industry break-throughs
 - Notes from the Mac Underground pondering industry opportunities each week
 - Select Public Domain Programs complete with instructions
 - Mac Abstracts summarizing Mac developments as reported in Mac mags
 - Member Classifieds for seekers or sellers of used equipment & talent
- No "online" charges (other than the cost of an AT&T call)!
- Access to fine new equipment at dealer cost plus 10%!

A Message from the Director

If you've ever read my *On the Road* column in MACazine—and enjoyed it—I would encourage you to join the Mac Underground. In our Underground publications I have virtually NO editorial restrictions! The result? You get material I could never put in the Mac mags.

When you call us (or write) we'll give you the phone number of the SafeHouse nearest you. We'll also send you a free copy of **Underground Dossier!** See you online?

MAC UNDERGROUND HEADQUARTERS
607 North Court Street, Fairfield, IA 52556
Voice (515) 472-9613 10AM to 4PM Central



Jerry Daniels, Director of Mac Underground-USA

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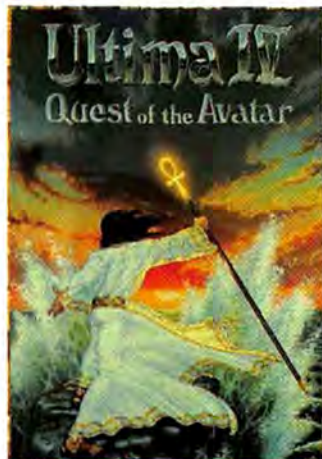
New ON THE MENU

THE JACK OF SPADES



This was done on a Mac! The art is from *Mac the Knife, Vol. 1*, published by Miles Computing, and the color was added using Dunn Instruments Graphics Generator and Film Recorder. These wonderful tools are not for everyone, as they list for almost \$10,000, but their ease of use and quality of output can make a lot of sense for ad agencies and companies that must use a lot of color in their work. Contact Dunn Instruments at PO Box 77172, San Francisco, CA 94107, (415) 957-1600.—SB

THE ULTIMATE FOR ULTIMANIACS



The latest chapter in Lord British's *Ultima* saga has been in stores for the Apple II for a few months now. But Mac fans can look forward to playing *Ultima IV: Quest of the Avatar* any day now. This one is chock full of new features, challenges and

characters to interact with. Look for a full review in these pages as soon as the Mac edition appears.—TFH

MACINTOSH PUBLISHING GOES TO COLLEGE

A group of Newswriting and Writing/Public Relations majors at the University of Pittsburgh's Bradford, PA campus, have launched a bi-weekly newspaper with a Mac-based typesetting system. The new system replaced "an ancient IBM Composer which was so difficult to learn that overly long training time made typos commonplace and errors frequent" on a staff that turns over constantly as students graduate.

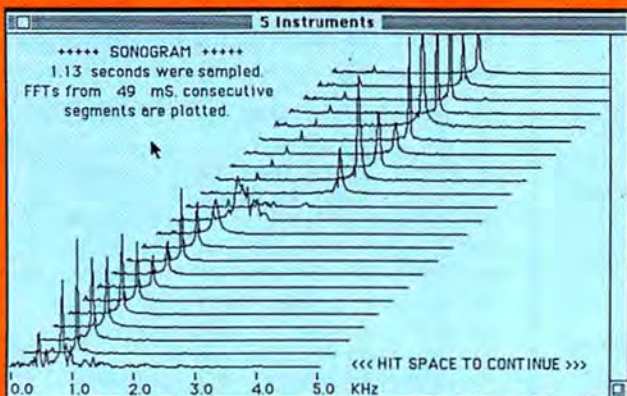
The writers produce their stories in *MacWrite*, merge

their files in *Microsoft Word* and print out the finished product on the LaserWriter. Graphics are drawn in *MacPaint* or ported in from pre-drawn graphics programs.

"It's a great system," says the editor. "It's every bit as good as the top-of-the-line professional typesetting systems, but at a fraction of the cost. This equipment is not only affordable, but it gives us the chance to get some real-life, hands-on experience before we enter into the world of work."—TFH

CATCH THAT WAVE!

In Spanish, *adios* means "goodbye." That's what students and scientists in electronics labs will be saying to their oscilloscopes, spectrum analyzers and voltmeters once they see *MacADIOS* (Macintosh Analog/Digital Input/Output System). The system consists of a hardware interface (eight 12-bit analog inputs, four 12-bit analog outputs, 16 digital inputs/outputs), software-based instrumentation (oscilloscope, XY recorder and spectrum analyzer) and a set of primitive commands callable from BASIC and C that allow con-



trol over every aspect of the system. This package, at a pricey \$2500, will find an audience in every lab with an eye to the future and a

hand on the mouse. Get more information from GW Instruments, 3 Ames St., Cambridge, MA 02139. (617) 577-1524.—DB

UNDO

MacUser incorrectly reported the prices of several products in Issues 4 and 5: Mindscape's *Deja Vu: A Nightmare Comes True* retails for \$54.95, not \$39.95 as previously stated, and PBI's *Fokker Triplane* has a suggested list price of \$59.95. On page 106 of our December issue, "SliceS" should read "Slice!" "SliceS" will cause an ID=02 bomb. Sorry about that. The Hewlett-Packard LaserJet printer shown on page 70 in the December issue, and the Hewlett-Packard ThinkJet printer shown on page 71 were both courtesy of 47th Street Photo, New York City.—TFH

DID YOU MISS THIS?

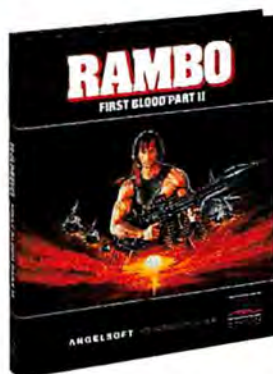
We accidentally left out a bit of the Sharon Zardetto Aker's *Rethinking ThinkTank* article (January, 1986, top of pg. 54). Here's the guilty text.

Let's look at some of the other things that it can do. *ThinkTank* can be used to keep track of all those Mac articles you read. Start with headlines for each magazine. Under each magazine name, you can list the date, or volume and number of each issue you have. Then, list the articles. You might want to first divide the articles by category, then list by title or author; you can include everything or only those you know you'll want to look up sometime. Open a text window for any article and list some comments or quote passages from it to refresh your memory months or even years from now.

With *ThinkTank*'s search capabilities, this document serves as a handy database.

RAMBO DRAWS FIRST BLOOD ON THE MAC

It was bound to happen. After a summer spent watching Rambo and a winter spent watching stores fill up with Rambo-styled Christmas merchandise, Mac owners can spend the spring watching—and playing—*Rambo: First Blood, Part II*. This text adventure casts players as the legendary Vietnam vet who, armed with a rifle, machete, machine gun and a beautiful sidekick, has to blast his



way across Vietnam. It's \$39.95 from Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667.—TFH

SEEK AND YOU SHALL FIND

MacBriefs, billed as a "Resource Digest for Macintosh Enthusiasts" is a resourceful magazine that compiles news, product information, and other goodies from various sources in the Mac community, bringing it together for easy access. It is a breakdown of information like what may be found in

magazines like *MacUser*. Published every two months and entirely produced on the Mac, this encyclopedia-style magazine includes 46 subject categories to help readers find exactly what they want. \$12 for 6 bi-monthly issues. *MacBriefs*, PO Box 2178, Huntington Beach, CA 92647.—DG

THE MICHELANGELO OF MACPAINT

French artist Frederic Voisin created this canvas by drawing images in *MacPaint*. He then used an architect's copier to blow up the picture (he doesn't use *MacDraw*—yet) and attached the copy to the canvas, where he painted in the colors.



At first glance, French artist Frederic Voisin's Paris studio looks like a standard artist's loft. But in a small room away from paint-splattered walls and unfinished canvasses, his most important tool—his Macintosh—sits out of harm's way. Voisin creates his post-modernist images of robots, Zulu warriors and breakdancers in *MacPaint*, then uses an architect's copier to enlarge it as big as eight feet high. After gluing the copy to his canvas, Voisin colors in the image using vivid acrylic paints. When exhibited under ultraviolet light, the fluorescent images seem to move on their own.

The French Ministry of Culture was so impressed with the young artist's work, that its Radiance color computer was made available to him for producing editions of color printouts of his work.—TFH

UPDATES

Do you have the latest versions of your programs? Most programs indicate what version they are when you look in the About... choice at the top of the Apple menu. If your version isn't the latest, contact the publisher about possible upgrades. Look for addresses in our MiniFinder section. Here's our list (as of press time).—SB

Aztec C	1.06g
BatteryPak	1.1
Choose Printer DA	1.5
ConcertWare+	3.0
Copy II Mac	4.5
ExperLISP	1.04
ExperLogo	1.1
Factfinder	1.1
Fedit	3.5
Finder (HFS)*	5.0
Finder (MFS)*	4.1
Fontastic	2.3
Font/DA Mover	2.5
Front Desk	1.0
Gato	1.3
Hayden Speller	1.2C
Helix	2.0 r5
Home Accountant	1.03
Jazz	1.0
Just Text	1.09
MacDraw	1.9
MacPaint	1.5
MacProject	1.0
MacTerminal	2.0
MacWrite	4.5
MS BASIC	2.1
MS File	1.01
MS Fortran	2.1
MS Word	1.05
Multiplan	1.02
OverVUE	2.0c
PageMaker	1.1
Quick & Dirty	
Utilities, Vol. 1	1.5
ReadySetGo	2.0
Red Ryder	7.0
Smartcom II	2.1D
Statworks	1.2
Switcher	4.4
ThinkTank 512	1.1
TimeBase	1.6
Turbocharger	1.11
VersaTerm	2.00

*HFS is Apple's new Hierarchical File System, MFS stands for Macintosh File System and is the old, "regular" file system. HFS will be necessary for the new Hard Disk 20.

New ON THE MENU

DISKTOP PUBLISHING

EarthBeat is a disk-based magazine devoted to Mac enthusiasts, a chaotic compendium of news, classified ads and clip-art offering a free issue to anyone who submits (on disk) "whatever you'd like to share with the world of Mac users." Sound interesting? Send your information on a disk, or a blank disk plus \$5, to Omegaman Productions, PO Box 278, Islesboro, ME 04848.—TFH

THE MAC BUG OF THE MONTH

This month's winner is André Ouimet from Kingston, Ontario. André discovered a fatal bug in Finder 4.1. Try this: Boot your Mac with a disk that has Finder 4.1 on it. You can boot using either the internal or external drive. Insert any other formatted disk in the other drive (call that Disk B). Now eject Disk B by pressing

Command-E or by using the command on the File menu (don't drag the disk icon into the trash can just yet).

Now insert yet another disk (not the original Start-up disk or Disk B) in the vacant drive. As soon as the drive starts to spin, immediately drag the icon of Disk B into the trash. Bang! ID=02.

A \$25 check has already

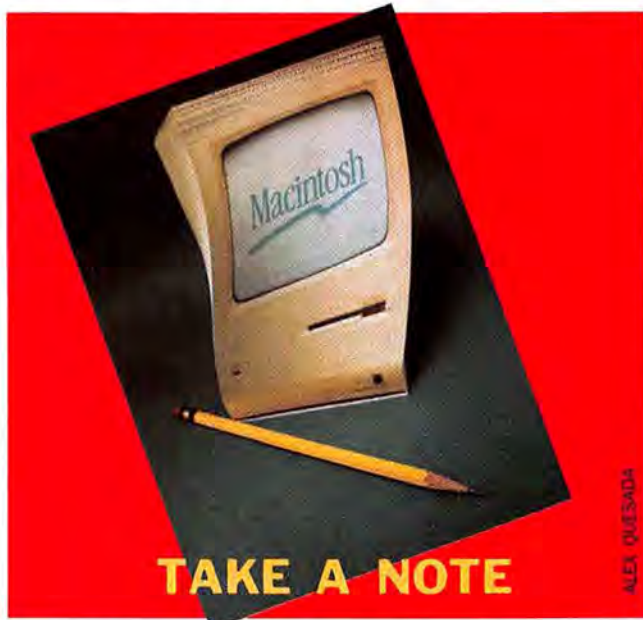
been sent to André. Get your bug reports in and you may be our next lucky winner. Send your reports to Bugsy, c/o MacUser Magazine, 25 W. 39th St., NYC, NY 10018. Remember to include all the details, such as what Finder, what fonts were in the system, and exactly how you stumbled on your critter.

SAVED BY THE SOFTWARE



Before: Oh, no! Crashed before I could transfer that data off the RAMdisk.

After: That depends on whether or not you were using MacMemory, Inc.'s Max memory upgrade in its 1 megabyte RAMdisk configuration. If you were, the dialog box shown will greet you when you start up again. And it means it. Your data is still there! And accessible, ready for an IMMEDIATE transfer to more permanent media.—SB



Apple's newest Macintosh desk accessory is a note pad — the non-electronic pen and paper type, that is! This \$7.50 full-color rendition of a miniature Mac is a perfect visual replica of the machine, right down to the model number stamped on the back.

The note pad is just one

of the items in The Apple Collection, a catalogue of Apple and Mac logo products ranging from baseball caps and other wearables to pins, clocks, ties and even a \$995 sailboard with a huge Apple logo on its sail. Contact The Apple Collection, PO Box T, Gilroy, CA 95021-2249.—TFH

WHAT YOU SEE IS WHAT YOU GET!

Would you buy a car without test driving it? Or a chair without sitting in it? One of the biggest problems with the retail software market is the problem of buying software sight unseen. The promotional mush on the back of a shrink-wrapped package is usually all the customer can see before taking the plunge, and many times disappointment immediately follows opening the box.

Well, the scenario is changing, thanks to software companies such as Enabling Technologies and Simon Schuster Software. These manufacturers are leading the way to a

new era of software marketing. Enabling's *Easy3D* comes packaged as an unwrapped manual with the disk bubble-sealed on the cover. Prospective buyers can study the manual in the store and determine whether or not the program is truly what they need. *Mac Art Dept.*, a clip-art type package, is offered as a disk inside an accompanying unwrapped book which contains prints of all the files on the disk and tips on creative uses.

We hope that more software companies will try this out. There may be an answer to the blind-date dilemma after all.—DB

ADVENTURE FANS TO EXPERIENCE DEJA VU

ICOM Simulations, creators of Mindscape's incredible *Deja Vu: A Nightmare Comes True*, designed a game creation system that will let them crank out icon-driven

adventure games almost as fast as they can write them. The newest game, featuring digitized sound effects, was previewed at COMDEX to a select few.—TFH

How Adding Macros Gives You More Speed, Less Mousing Around

Tempo™ – the ultimate macro.

Fly through complex command sequences! Integrate programs automatically! Make Jazz sing, OverVUE swing, and Excel jump for joy!

Add the Power of Macros to Your Macintosh

What's a macro? A macro records any sequence of commands or keyboard entries once and then replays them all quickly forever after. A single keystroke will recall the most complex series of commands. And you can create up to 450 Tempo macros in every application.

Go beyond simple record and playback. You get powerful features that will enhance nearly every Macintosh program. Programs like Jazz™, Excel™, MacPublisher™, MacDraw™, Helix™, OverVUE™, File Vision™ and nearly every other™ designed for the Macintosh.

Automate lengthy commands. Just

turn Tempo on while you perform a series of commands or keystrokes once, and *voilà!* you've made a macro. Format spreadsheets. Add boilerplate. Get creative!

Build vertical market applications by integrating unrelated programs with Tempo. You can create a single macro to automatically move data between an unlimited number of Macintosh programs.

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Fantastic Features Make the Difference!

Pause for text entry. Tempo will pause while replaying the series of commands so you can enter information. You can even *create your own dialog box!* That way, your Tempo macro can walk somebody through a program they've never used before.

Pause for Time. Either hours, minutes or seconds or until a given clock time, when the macro automatically starts up again. Works great

with modems. Or for reading lab data at regular intervals.

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A Tempo macro will read a spreadsheet cell or a database entry or anything else you can copy into the clipboard, and *branch* to another macro based on the contents. It uses simple "greater-than" and "equal-to"-style Boolean logic, and actually lets you *program your programs.*

"Live through the Launch." One macro can launch a hundred programs. Now there's beauty!

You can take information from your accounting program, move it to a spreadsheet, compare it to last month's results, build a graph from it, and modem it to an analyst. All with a single keystroke!

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- ☒ Pause for User Entry
- ☒ Create Dialog Boxes
- ☒ Pause for Time
- ☒ Branch on Conditionals
- ☒ Loop on Conditionals
- ☒ Set Replay Speed
- ☒ Cancel or Suspend Replay

New

ON THE MENU

MATH MEETS MAC

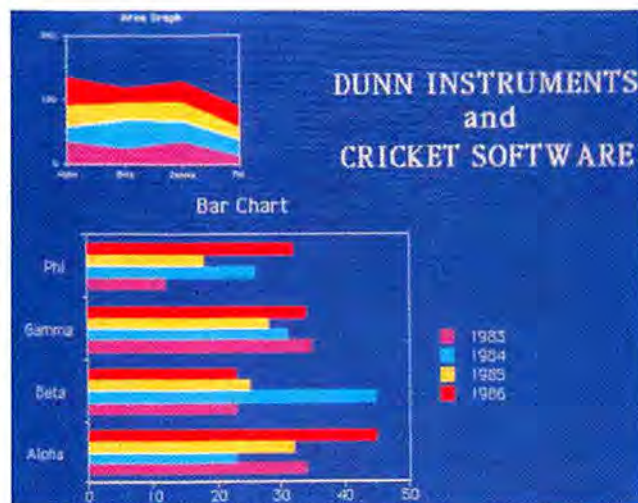
Algebra and calculus need never strike fear into the hearts of Mac users again. BrainPower's new \$99.95 list *PowerMath* program, can supply the answers to most symbolic math problems.

The program can handle many complex mathematical formulas using its built-in functions, and lets users define any additional functions that might be required. Results can be printed out and also plotted.

One of the very nice features of the program is the way answers are generated. Each step is shown on the screen and recorded.

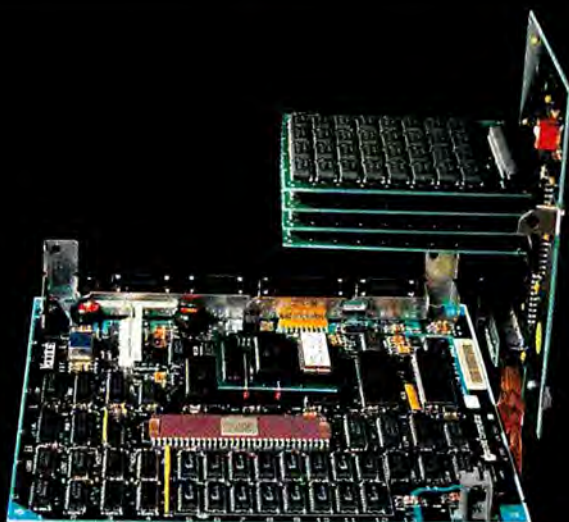
There is a cost for the great power that is at hand, and that's speed. The calculation process can be slooowww. But if you think of how much time it would have taken you to reach that answer. . . —SB

COLOR SOFTWARE ALA MAC



Special versions of Cricket Software's *StatWorks* package run with Dunn Instruments colorizing products to produce real color output from the Mac. The output takes the form of 35-mm slides, instant prints (either Kodak or Polaroid), instant slides or Polaroid in-

stant overhead transparencies. This example is from a 35-mm slide. For prices and availability contact Dunn Instruments at PO Box 77172, San Francisco, CA 94107, (415) 957-1600, and Cricket Software at 3508 Market St, #206, Philadelphia, PA 19104, (215) 387-7955.—SB



Micro Conversions' 1/2/4™ Megabyte Upgrade

Inside every Macintosh beats the heart of a superb machine. However, the sad fact is, most Macs will never have enough memory to run the major integrated software packages wholly from memory. Or perform other tricks. But yours can.

Available in 1 Meg, 2 Meg, or 4 Meg configuration, the Micro Conversions 1/2/4 Megabyte Upgrade is a modular and expandable memory system that will give you both the room to run and the room to grow. Since the Macintosh operating system can address only up to 4 Megabytes of RAM, the 1/2/4 is the ultimate memory system. And the 1/2/4 is HyperDrive® compatible.

RUMOR MANAGER

Look for big sales from a new disk swapper, called naturally enough, *MacJuke* ... a slew of macro-type programs is due to hit the market around now ... the hardware race in '86 will be lead by the LaserWriter's astounding price drops. Its street price will drop under 3G's by the end of the year ... the new larger screen Mac model will create a huge workstation/CAD market, with many major manufacturers jumping in to join the pioneers now struggling in the field ... the next Mac (the one after the Mac Plus) will have punch-out front panels for several 800K drives ... which may be 1000K (one meg!) drives by then, if Apple gets all the bugs out its new disk packing scheme ... another software area due for major gains is the data compression area, where several good products, such as

Packer, are already competing ... programmers in England and Southern California are busily working together to produce the most astounding word processor ever seen. It should be out in the fall ... an entirely new printing technology will be introduced by a Silicon Valley company real soon now ... look for third-party ROM cards to replace the RAM modules in the Mac Plus, and look for real power programs on those chips ... the Amiga will not see the end of the year and may be gone much earlier, as Commodore can't keep the cash moving ... FORTRAN (of all ancient arts) is making a spectacular comeback on the Mac, thanks to college pros who are still in the 60's (and, of course, it has been helped by Microsoft's really good *MacFortran*) ... John Dvorak likes the high-speed

version of the Mac Plus so much that he is writing a book on it; he's left his PC to his dog Sparky (for a fireplug?) ... a Far East firm plans to release a Mac clone that will have a color monitor (but no software!) ... colorizing charts and artwork will be practical for most Mac users within 90 days, and colorizing units will crop up in all the shops now selling LaserWriter services ... one of the University Consortium schools has a page layout program that is better than any commercial program ... the Mac is sneaking into some big insurance companies thanks to the new stat software, with managers no longer having to rely on their high priests of statistics ... Steve Jobs' new machine is coming along at a much faster pace than anticipated, and a prototype will ready before the first snow.



AS TIME GOES BY...

MacPDS' *MacCalendar* looks just like our favorite computer, only its screen is composed of tear-off pages for each month in the year. It sells for \$4.95, less for retailers. For ordering information, contact MacPDS, P O Box 4218 Serene Way, Lynnwood, WA 98037, (206) 742-4360.—TFH

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New!!

MacNifty Switch: Your Mac will never turn its back on you! With MacNifty Switch you won't have the problem of turning your Mac around to change plugs for any nine pin port. MacNifty switch will allow any port on your Mac to have two different peripherals attached at once and with the turn of the knob you can switch between any two devices. Examples of using the switch are; use your modem port for both a modem and a digitizer. Have two different printers on your printer port. If you have a hard disk drive the MacNifty Switch offers a main frame of options. This remarkably powerful switch retails for only **\$34.95**. Order today and never see the back of your Mac again.

NEW ABCD Port Switch: For those of you who have found even more things to plug into your Mac than we thought of...you can now get the MacNifty ABCD 4 port serial switch for **\$54.95**.



New!!

Keyboard: Music, music, music will come floating from your Mac with the new MacNifty Polyphonic Keyboard. Our new keyboard comes standard with a music driver, but to get the most from the keyboard, you should buy Concertware Plus from our friends at Greatwave Software. With the keyboard and Concertware Plus, you can touch the keys and see the notes appear on the musical staff. You will be able to design your own sound envelopes and turn your MacNifty Keyboard into a concert music synthesizer. Keyboard only **\$149.95**, Concertware Plus **\$69.95**.

All MacNifty products carry a limited lifetime warranty. We accept Visa and MasterCard or C.O.D. orders. Dealer inquiries are invited. State taxes will be applied where applicable.



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MacNifty Joystick Converter: How would you like to mouse around with a joystick? Sound impossible? Not with a MacNifty Joystick converter. All you have to do is plug in our converter to your mouse port and joystick away. You say you don't have a joystick? Well, we thought that some of you might not, so we've included our own. This nifty little joystick fits nicely in your palm and makes playing games, using spreadsheets or almost any application a real joy. For even more power with your MacNifty Joystick Converter, the hyperwarp control can decide just how fast your cursor moves. For only **\$44.95** take control of your mouse.



MacNifty Stereo Music System: To hear or not to hear, that is the question. The answer is the MacNifty Stereo Music System, it will bring out the true power of your Macintosh sound capabilities. The MacNifty Stereo takes the mono sound from your Mac's audio output and produces synthesized stereo separation. The MacNifty Stereo Music System let's you hear the power of the Macintosh in bold studio quality sound for only **\$79.95**. Order today and hear what you've been missing.

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BY MICHAEL D. WESLEY

COMDEX EXPOSED

COMDEX is the stuff of legend: the excitement of new products; the glamour of emerging companies taking on the big boys; the insanity of aftershow parties where all the deals are really made; the lure of the world's biggest job market for computer people; and the curious debut of new products that will never exist in production form. All this was COMDEX. So I was geared up for my first assault on the hallowed halls, even after spending over 2 hours in a huge snakelike registration line.

Once I had entered the convention center, one of six display areas for products, I found it difficult to maintain the same awed posture that fit so comfortably in anticipation. This COMDEX was big and brash, but decidedly lacking in excitement, wonder and carnival showmanship. Most of the Macintosh products on display were showcased in the Apple booth, with products for all Apple models sharing the space.

The theme changed from morning to afternoon—home, educational and personal software had the morning times, with heavy business applications later in the day. By spending the better part of 1 day at the Apple booth, I was able to see most of the Mac products at COMDEX. This was very convenient.

Apple focused heavily on products revolving around three themes. The first theme was desktop publishing, where Apple is making a significant push, so fully one corner of the large booth was turned over to letter and image processing software such as *PageMaker*, *ReadySetGo* and *MacDraft*. Alongside the software were two hardware items of note. Linotype, makers of professional typesetting equipment, showed the Linotron 100 typesetter which produces spectacular output from Macs. The Macs simply thought the machine was a LaserWriter and acted accordingly. This brings professional quality typesetting with Macintosh one step closer.

SpectroFax showed a 300-dot per inch scanner that looks like a desktop copier. It reads an image into the Mac as a *MacPaint* file, rather nicely. It could be that one day soon you could scan a document on a machine like the SpectroFax scanner and have it output a duplicate on the LaserWriter, turning the

LaserWriter into a desktop copier. The scanner itself is very interesting, but its implications for future products are what's really fascinating.

Around the corner from the desktop publishing area, multiuser software was highlighted. Infosphere showed *MacServe*, a fully implemented Macintosh version of *XL/Server*, which was seen at the MacWorld Expo in Boston this summer. *MacServe* essentially turns any Macintosh-networked hard disk into a functioning file server. As you might expect, *MacServe* generated a lot of attention, and not only at the Apple booth. When I cruised around to the Paradise display, *MacServe* had been loaded and two Macs were working off the new Paradise 20.

Also in the multiuser mode, 3Com showed *EtherNet*, and one booth away



Corvus displayed *OmniNet* for the Mac, each with connections from Mac to the Apple II to the IBM PC.

One of the few pieces of multiuser software for the Mac, *Omni 3*, was on display near by. Look for *Omni* (Blyth Software) and General Computer, makers of the HyperDrive, to make a significant joint announcement at the MacWorld Expo in San Francisco.

The third major theme at the Apple booth, expert systems, was played on three instruments: *Insight* accounting software from Layered; *NEXPERT*, from a Palo Alto company called Neuron Data Systems, and *Document Modeler* from The Model Office Company in Toronto, Canada.

The *Document Modeler*, though not an expert system as such, incorporates many

expert system techniques to make custom documents easy to generate. The user creates a *MacWrite* document called a "script" that contains all the information relevant to a particular type of document. This could be a lease offer and attendant lease agreement, a design or floor plan, a sales presentation or a medical report. The script is used to make a template for documents. The Model Office Company has also contracted experts in a variety of fields to do standard templates. Even templates can be easily customized by the end user.

NEXPERT appears to be a phenomenal product. (And expensive—it retails for \$5000.) *NEXPERT* is an expert systems building tool developed by a team of researchers at Carnegie-Mellon University. It makes use of the Macintosh environment to provide an easy, accessible means of building a knowledge base by entering a series of rules. For those of a technical bent, *NEXPERT*'s inference engine does backward and forward chaining, and can do both in a single evaluation. With a boxcarload of features, *NEXPERT* has found a home with a number of large companies, including Boeing, NASA, Hughes Aircraft and Peat, Marwick to develop in-house problem-solving systems.

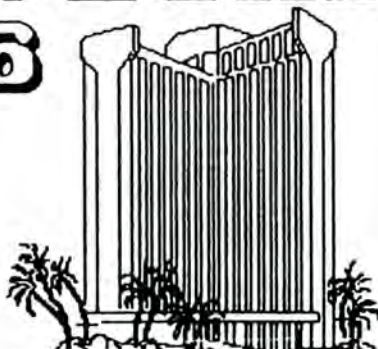
And Layered (*Front Desk*) showed *Insight*, accounting software with a built-in expert system to help keep better track of financial data and make better use of it in decision making.

Also at the Apple booth, Rick Barron of Affinity Systems showed a final version of *Tempo*, a product that adds macros to virtually any Mac software. It can be used to link programs—calling data from one and automatically transferring it to another, for example. You can even create your own dialog boxes, so that a macro pauses and waits for you at a particular spot. *Tempo* had been expected to ship long before this, but was held up so that it would work with HFS, Apple's new hierarchical filing system. The result is a smoother, cleaner product that does even more than the early version shown in Boston. Besides looking like a great product, *Tempo* is not copy protected and comes with a full money-back guarantee!

I was delighted to see *Paladin* at the Apple booth because they showed a new, improved version of *Crunch*, called *SuperCrunch*. Though still not blindingly fast, *SuperCrunch* goes out of its way to correct the faults in *Crunch*, including improved operating speed, slightly more intuitive functions and the addition of macros. But one new feature in *Super-*

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Crunch blew me away. Besides being able to link spreadsheets, you can have up to 256 (theoretically, of course) spreadsheets active at one time, in layers. A cell at any layer can call any other layer or multiple layers, so several related spreadsheets can be linked and displayed without closing and opening files. *Super-Crunch* must take up an enormous amount of memory, so I wonder how large each sheet could be. Still, the concept is fabulous.

Away from the Apple booth (like, far away, in Caesar's Palace) Spectrum Holobyte showed a new simulation game called *Orbiter*. In the same mold as the company's successful *Gato* submarine simulation, *Orbiter* is an incredibly detailed and accurate simulation of a space shuttle mission. *Orbiter's* designer and chief programmer, Sean Hill, who also programmed the Mac version of *Gato*, took control screens directly from NASA materials, and gleaned operational information from videotapes of shuttle missions. The result is a program with stunning graphics and a very realistic feel. Although *Orbiter* is complicated, there is a teaching mode that makes it fairly easy for a beginner to get started. And there are several different missions built in, including repairing satellites and building pieces of a space station.

Spectrum Holobyte also debuted a new gimmick for its future packaging, a hologram to tie in with the company's name. The first 100,000 packages of *Orbiter* will have a wonderful 2-inch square holographic image of planets and heavenly objects seen through a window. The hologram will peel off the box so it can be placed anywhere.

One of the more esoteric products displayed was *TimeWand* from Videx. *TimeWand* is a bar code reader with a built-in clock. It scans bar codes, then records not only the code but also the time when the scanning took place. About the size of a credit card calculator, *TimeWand* fits into a small charging unit with software that downloads the recorded data to the Mac as a binary file through the modem or printer port.

Finally, several major companies, including 3M, Maxell, Sony and Panasonic, showed read only, write once and read/write optical disks. All are involved with various other companies to produce working optical disk drives. Don't look for one on the Mac just yet, but it is definitely on the way.

As memories of COMDEX fade, hints of what's to come from future Mac starts to glow faintly in the distance. But that's for next month. ☐

For all of you who thought Dennis Brothers was crazy to give away MacTEP, here's MicroPhone.™ The one he's selling.

When the Macintosh first came out, the most powerful personal computer ever built didn't have the brains to make a phone call.

So Dennis Brothers tore down his Mac, figured out how it worked, and wrote Mac's first communications program, MacTEP.

Which he proceeded to give away.

MacTEP was a classic. The first standard in Mac communications.

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MicroPhone is so sophisticated, it cuts through the worst tangles you encounter when you go on-line. A delight to the experienced. And a saviour for the novice.

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But that's just the beginning of its ability to automate the whole telecommunications process. For MicroPhone features the most powerful, yet simplest to set up macros ever seen on a program.

Write your own script.

Dennis gives you two ways to create these macros. The first is to set MicroPhone in the Watch Me,™ the recording mode.

The program looks over your shoulder as you conduct a communications session following your keyboard and menu commands.

MicroPhone can remember not only an uninterrupted string of keyboard commands, but also wait-for-prompt conditions. In fact, virtually any series, no matter how long or complex.

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The second way to generate macros is through

Let's get technical box.

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MicroPhone's unique "Script" window. Open it and you'll discover an extensive set of functions which can be called up and linked with a series of mouse clicks. The resulting macro is extremely powerful. The method is Mac-simple.

Using Watch Me or the Script window, or a combination of both, you can automate log-ons, file transfers and unattended operations. And navigate back into the farthest reaches of any database with a single stroke.

Make files fly.

Sending and receiving files is faster and easier with MicroPhone, too. Using XMODEM protocols and MacBinary, MicroPhone transmits or receives anything you

can create on a Macintosh. Including MacPaint documents, text, spreadsheets, charts, database tables, or programs.

MicroPhone allows you to scroll back and forth at high speed to review your session. Then you can select any portion of your session, print it, save it to a file, or copy it to the Clipboard for use by other Macintosh programs.

MicroPhone also features an editor desk accessory for composing text in mid-session using familiar Macintosh editing techniques.

But enough talk. See for yourself what Dennis Brothers has done now to advance the cause of telecommunications. Just take any major credit card in hand and call us toll free to place your order.

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BY DOUG CLAPP

MUTUAL INTERROGATION

What's the best computer magazine? Present company excepted, of course.

No. *BYTE* was the best computer magazine. Years ago. Today, without question, it's *Dr. Dobb's Journal*.

Who's this Dobb guy? Don't ask. The guy responsible is Mike Swaine, *Dr. Dobb's* editor. Swaine used to write a brilliant, quirky column for *InfoWorld*. Swaine is not an arrogant, pushy "Let me run the magazine" type. Swaine is a friendly, quiet man.

If you don't know the C programming language or assembler or Pascal, though, you won't understand *Dr. Dobb's Journal*. The magazine is subtitled "Software Tools for Advanced Programmers." What that really means is lots and lots of C stuff. A sea of C stuff. (Sorry.)

The world is C and *Dr. Dobb's* doesn't stint on C-related articles. But there's more. There are hardware articles—including the first ever "Do-it-yourself 512K Mac upgrade" in a major publication. And wonderful columns by smart, nerdy, opinionated columnists. And clashes and disagreements and meanderings and nuts-and-bolts things and flat-out oddities.

It's got a great feel. A great tone. All Swaine's fault. Swaine is an old-timer (well over 80 by now, as I remember) and *Dr. Dobb's* has an old-time feel: computers as fascination and fun.

But enough gush. That's only a preface to some ripping off. I want to rip off D. E. Cortesi, who writes the column "Dr. Dobb's Clinic."

I'll do that in a minute. But first, a comment from one of the authors of the first FORTRAN compiler. Here's the comment: "People who write language compilers are smart. And they assume that people who use compilers are as smart as they are."

"But they aren't."

Back to D. E. Cortesi. In his column, Cortesi discusses research into compiler use. How people really use language compilers. Not what the compilers can do—that's in the manuals. Instead, what features are actually used by users.

I won't bore you with all the statistics (get a back issue: September 1985).

Briefly, here are the findings: most people write simple programs. Nothing tricky. Most subprograms (92%) had two or fewer parameters. Most arrays (94%) only had one subscript. And so on: simple programs. Nothing tricky.

In other words, most people drive their Ferrari compilers at 5 miles/hour.

Compiler designers, of course, write compilers optimized for 180 around unbanked corners.

What's it to ya? Consider *Excel*. The universe has more atoms than *Excel* has cells, but only a few more. In the Himalayas, Buddhist priests believe that when every cell in an *Excel* spreadsheet is filled, the skies will open and the world will end. But not this week.

Meanwhile, we'll buy *Excel* because it's a great and powerful spreadsheet, then write small and wimpy spreadsheets.



That's okay, really it is. But it's also related to The Great Computer Shake-out. It's not that we want to write wimpy spreadsheets or simple, wimpy programs (or even simple, wimpy computer columns like...ah...).

We just don't know how to do better. We don't know how to get what we want. And then we don't know how to use what we have.

More people would buy computers if they could figure out how to use the software effectively.

Look, if I don't use *Excel* for a month, I don't remember how it works! And, as spreadsheets go, *Excel* is a marvel of intuitive use.

Manufacturers, bless their hearts, are trying, but it's not enough. Macintoshes, help menus, manuals and good program design don't suffice. They help, but they just don't suffice.

What we need is interrogation. Computers that say, "How about this? Want to make this report like the one you

made yesterday?" Or, "You only call that procedure once. Still want to use it?" Or, "How about making this the startup application?" Or, "Want me to learn that log-on procedure for you?" Or, "You type that all the time! Want to make it a macro? Or a menu selection?"

This isn't brilliant thinking on my part. Everyone is trying to make programs smarter. Even IBM is trying. (Imagine: a company with over 350,000 employees and not one decent piece of IBM-written software. Margie, take a note: next month we jeer at *TopView*.)

Still, even IBM is trying. For example, IBM has studied the numbers and types of requests made by bosses to secretaries. They found that the requests were few, predictable and easy: get me this number, get me this file, do this, do that.

That research will lead to software that knows what we (most probably) want. Instead of merely giving commands, we'll be asked what we want. Program operation as mutual interrogation. We ask the computer and it asks us.

Teamwork.

Let's not confuse ease-of-use with ability-to-get-desired-results. With the Macintosh, we've already got ease-of-use. Results require teamwork: they require mutual interrogation.

Interrogation, from our end, requires natural language input. The best examples to date are CLOUT, the natural language front-end for *RBase* and *Q&A*—both database programs for IBM Personal Computers—and any Infocom game. You know: Gimme those turkeys. Display all records where the home's price is less than \$60,000 and more than \$45,000, and the home has three bedrooms, a double garage, and is located in Brooklyn. Put the gold in the bag, then light the lantern and kill the grue with the two-handed sword.

The rise of natural language is...maybe...great news. In a year, we will be quizzing our programs and they'll be quizzing us back. If you think that smart compilers and smart databases and smarter *Excels* are what the world needs, your glass should be high in the air, the toast on your lips. Buy computer stocks.

But if you're a cynic, you'll take a page from *The Hitchhiker's Guide to the Galaxy*. In describing products of the "Sirius Cybernetics Corporation," *The Hitchhiker's Guide* says this: "It is very easy to be blinded to the essential uselessness of them by the sense of achievement you get from getting them to work at all."

Get ready for smart programs. Let's see what happens when the blinders come off. ☐

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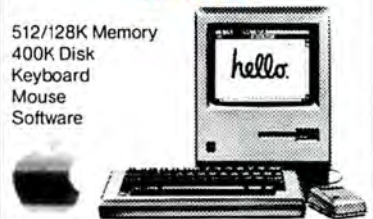
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Q U I C K

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DISK RANGER ttttt

List Price: \$49.95. Published by Mainstay, 28611B Canwood St., Agoura Hill, CA 91301. (818) 991-6540.

THE OTHER DAY I PICKED UP THE PHONE AND IT WAS an author interested in how I had edited a manuscript he had submitted. No problem, I just reached over to the pile of disks on my desk.

Ooops.

I had a bunch of blue disks, and I had lots of beige disks, and a couple of black disks, and only a very few had labels. In fact, the ones that did have labels looked like they were written by someone in the throes of either delirium tremens or last-minute is-

sue deadlines. I wound up scattering disks madly about as I catalogued one after the next. It was a four-antacid morning that proved two things to me: I should investigate transcendental meditation and I should go out of my way to make sure I use the *Disk Ranger* program in the future.

Disk Ranger is a very simple to use utility program that automatically reads the directory from a diskette and then prints out formatted labels to stick onto the disks. Every step of the procedure follows the Mac interface to a T, and it comes as close to making disk cataloguing fun as that procedure is ever likely to be.

The Auto-Log function allows you to first make a master catalog of all your important disks. Simply pop the disks in one after the next. Their volume names appear in a window at the top of the screen. Each volume name can be highlighted with the mouse. When a volume is highlighted, its catalog is read.

As each is read, an on-screen listing (in a larger window below) tracks all the file names and which disk-volume name each file appears on. It also tracks when the files were created and modified as well as the Type and Creator attributes of each file and the file size in bytes. As the volumes to be catalogued are selected a Filter choice may also be made to prevent repetitive file-

names such as *System*, *Finder*, *ImageWriter* and others (as well as any invisible files) from appearing.

Once the on-screen catalog is complete, it can be sorted. The sorting may be done alphabetically, by volume name, by Type or by Creator. The catalog may also be searched with a Find File command. The catalog can be updated whenever a disk is changed simply by choosing to Cut Volume and then inserting the "new" volume. Catalogs may be saved to disk or printed out.

A hard disk catalog is produced in much the same manner. Each mounted volume on a hard disk is chosen one after the next.

Once you have a catalog, you can easily print out utilitarian, but still attractive, labels for each floppy disk that was logged. You can Select All Volumes or, with the mouse, highlight any combination of volumes to print labels for using blank, fan-folded labels in your *ImageWriter* (Mainstay includes about 50 in the package). Border patterns are selected first and then a choice is made to put either 0, 24 or 48 file names on a label. It's even possible to label the disk itself with a name other than its volume name.

Disk Ranger does everything I would expect from a disk cataloguing program and adds a few extra features besides. It's an excellent tool to have available.—NLS

File Name	Volume Name	Created	Modified	Avail	# of Files
Desktop	81	9/1/85	11/5/85	222K	7
Disk Ranger	Disk Ranger	10/20/85	11/5/85	222K	7
Finder	Finder	10/20/85	11/5/85	222K	7
ImageWriter	ImageWriter	10/20/85	11/5/85	222K	7
System	System	10/20/85	11/5/85	222K	7
...

QUED (QUALITY EDITOR FOR DEVELOPERS) ttttt

List Price: \$65. Published by Paragon Courseware, 4954 Sun Valley Road, Del Mar, CA 92014. (619) 481-1477.

QUED IS A VERY SPECIALIZED WORD PROCESSOR. It doesn't do many things that word processors must do. For example, it doesn't word wrap on the screen, it doesn't allow a choice of type styles and it can only create single-spaced lines.

Why is it even on the market? Well, *QUED* is the best tool a programmer could have for working with source code. This program is a code editor, and it's the best product of its kind. It has versatility and power beyond even its ad's claims.

Ease of use has been designed in. There are keyboard equivalents for every menu item, and well-documented keyboard commands that go beyond the menu. For exam-

ple, COMMAND-SHIFT-OPTION-SPACE deletes the word to the right of the cursor, COMMAND-SHIFT-OPTION-BACKSPACE deletes the word to the left of the cursor and COMMAND-SHIFT-RETURN deletes the current line. Even the SFileGetFile and SFilePutFile dialogs can be operated from the keyboard. Having all these options is a great convenience when working with a mass of solid source code.

Users can have multiple documents open simultaneously, arranged in either the usual overlapping way or in a tiled format in which smaller areas of more files are visible. Up to 16 open files can be tiled on a single layer.

QUED is fast because both the program and open files are loaded entirely into RAM. Available memory is constantly shown and updated on screen, at the right end of the menu bar.

Among *QUED*'s other outstanding features are an adjustable auto-save (the number of keystrokes is settable), the ability to split the active window into four independent panels, a global search that works on all open files (not only on the file in the active window), the ability to change a

selection to all upper case or all lower case, extensive checking of user-set delimiters (for unmatched pairs) and a wonderful menu item called "Zap Gremlins," which deletes those "illegal" characters that cause compilers trouble (such as the ASCII 3 generated by the ENTER key in MDS Edit).



If you do much programming, get *QUED*. It's as good as that and as simple as that. If Paragon added word wrap and simple style and line space formatting commands, this would be an unbeatable word processor, too.—SB

C L I C K S

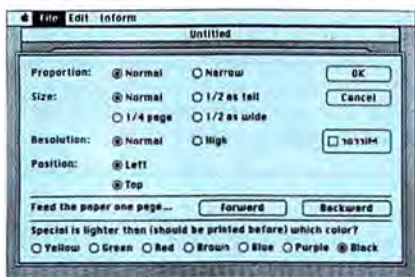
COLORPRINT

List Price: \$49.95. Published by Esoft Enterprises, PO Box 179, Owasso, OK 74055, (818) 272-7616.

ALL RIGHT, SO APPLE HAS INTRODUCED THE ImageWriter II and it has wonderful color printing capabilities, but how about the "rest of us" who own the Classic—the original ImageWriter? Well, the solution has actually been around for awhile now. It's called *ColorPrint*.

ColorPrint is a program that reads MacPaint files and prints them out using color ribbons on a standard ImageWriter. A group of Paint files is prepared beforehand by splitting an image up into different layers. Each layer, or separation, relates to a specific color.

This is a painstaking task, but once it's done, *ColorPrint* lets the user assign each separation to a specific ribbon color.



Prompts appear to insert different ribbons as each separation is printed, with lighter colors printed before darker shades (in order to avoid dark ink splashes on the

lighter ribbons). The program automatically rewinds the paper in the printer to control precise registration.

ColorPrint has a variety of print options. Graphics can be printed in either Standard or High resolution, and images can be scaled to sizes including quarter page, half height and half width. A mirror option flips the image horizontally on printout.

The program supports yellow, green, red, brown, blue, purple and black ribbons. Interesting effects can be achieved by experimenting with multiple layers of different fill patterns to get intermediate tones, and by mixing the same patterns with different colors to create nonstandard hues.

It takes a good measure of preparation and practice to use *ColorPrint* effectively, but it does breathe some new life into the old, but faithful, ImageWriter.—DB

WINTER GAMES

List price: \$39. Published by Epyx, 1034 Kiel Court, Sunnyvale, CA 94089. (415) 745-0700.

SO WHAT IF THE NEXT WINTER OLYMPICS WON'T BE held until 1988? Mac owners can hold their own *Winter Games* whenever they want to—and the snow on those slopes is guaranteed not to melt, even on the hottest August afternoon.

This action game lets up to 8 armchair athletes compete against each other in sports ranging from skating (both freeform and figure), bobsledding, hotdog skiing and ski jumping to the serious rigors of the biathlon (ski cross-country, trap shoot, then repeat the sequence three times). The graphics are extraordinary, and accompanying sound effects are good.

The game begins with the ceremonial lighting of the flame, complete with a torchbearer, theme music and doves flying

over the audience. (There is no closing ceremony, which will probably be included in the planned sequel, *Winter Games II*.) To start the competition, each player types in a name and selects a country to represent. The Mac plays a snatch from each country's national anthem. Have you ever heard the national anthem of Australia, the Soviet Union or Ireland? Here's your chance.

Each competition is played differently. For example, in the biathlon, players mouse back and forth to move the skier's feet, then click the mouse button to shoot at a target. Hotdogging requires a press of the button to begin, with players typing in keys on the keyboard to select specific moves.

My favorite event is the figure skating competition. A pert figure skater in a little tutu frolics across the ice, executing camel spins that blend perfectly into sit spins, triple Lutz jumps and axles with easy grace. Forget to press "S" when she's ready to land and she sprawls on her knees as if begging the judges' forgiveness.

At the end of each event the winner's national flag is displayed and its theme song sounds. Options include practicing a single event, competing in one event, competing in some events, and competing in the whole contest. When players have finished all the events, the Mac tallies the total points and displays each final score. The winner's theme sounds and then, the Olympics are over—until the next time you play, that is!—TFH



WORDPLAY

List Price: \$49.95. Published by Palantir Software, 12777 Jones Road, Suite 100, Houston, TX 77070. (713) 955-8880.

IF YOU'RE A CROSSWORD PUZZLE ENTHUSIAST, THERE is no need to sharpen pencils any longer. Now there is *WordPlay*, a word game with over 50 puzzles geared towards different levels of expertise: KidStuff, Easy, Regular, Sunday, Theme and Diagramless (the most challenging). The clues list and the puzzle dimensions are all you get when you try a diagramless puzzle. Puzzles are viewed on



screen on a 15 by 15 grid, but grid dimensions can go up to 23 by 23. Scrolling lets you view portions not visible on screen.

When a puzzle choice is made, the gamer

is given three options in a box. Play begins the game, Work enters the creative mode and Cancel quits. Click on Play and the selected puzzle appears in a document window with just two clues (one per direction) above the puzzle.

Even though *WordPlay*'s manual is straightforward and concise, *WordPlay* features Help menus (Tools menu and Help menu) to make life easier while working out a puzzle. A Tools menu option allows the gamer to display all clues in either direction at the right of the puzzle, for those who need the whole picture.

Cursor controls are strange and need some getting used to. There are key con-

Q U I C K C L I C K S

trols as well as mouse techniques, some of which serve the same purpose and all summarized along with game instructions in the Help menu.

Want to know how you're doing? The Help menu includes a Proof option, which allows all errors in a puzzle to be displayed without giving the answers away. Options on all menus can operate on selected areas of the puzzle, words or on the whole puzzle if no selection is made. When the Show Wrong option is selected from the Help menu, a question mark is placed in squares to mark where wrong letters were entered.

For those crossword players who'd never dream of filling in the blanks with ink, the Tools menu allows the option to enter a guess, which will appear in italics. If after a few more entries, you think the guess is correct, select Confirm, and voila! The guess word turns to normal print.

WordPlay allows creative puzzlers to construct their own puzzles by starting in the Work mode. Gamers can set their own dimensions (to which changes can't be made once work is started). Changing one square can throw off the whole puzzle because it affects other squares as well.

Gamers who love working on newspaper crossword puzzles but don't get the time to do them can alter the already available grids to input a puzzle from the newspaper for later solving.

Printing is overpowering at first since it allows styles ranging from printing a blank puzzle with clues on a separate page, to printing everything on the same page. Overall the best pastime enjoyment translated onto the Mac, *WordPlay* is innovative and still user friendly.

So, if crossword is your game, *WordPlay* is the name.—DG

A BILL BECOMES A LAW

List Price: \$59.95. Published by Queue Intellectual Software, 5 Chapel Hill Dr., Fairfield, CT 06432. 1-800-232-2224.

How do you make kids actually study, when they could be playing *Zork*? Disguise the lesson as a game, of course!

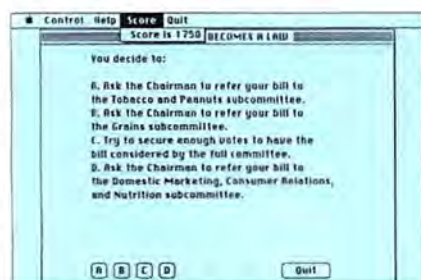
A Bill Becomes A Law, a multiple-choice quiz "adventure," casts the player as a Congressional delegate from the fictional state of Adams. The object is to pass a bill into law requiring apples (Adams' main product) in every federally sponsored school lunch in the nation. Make the right decisions and the bill becomes law, your constituents are happy and you get re-elected to another term. The wrong choices made along the way lead to bad feelings among the people of Adams, a lost bid for re-election and a career down the tubes.

The program presents players with a question or problem, with multiple choices attached to buttons at the bottom of the screen. Just click on the button next to your answer and the computer immediately assigns a point score based on the relative merit of that choice.

There's a definite role-playing element here. If one of your key supporters suddenly balked, would you: try to persuade him to change his mind; try to agree on a compromise bill; or try to push through the bill without his support?

As in Queue's *Starting A New Business*, drill and practice sessions on straight facts are sprinkled into the text wherever appropriate. In addition, information on the Senate, House and Conference can be seen by selecting them from the Help menu.

A Bill Becomes A Law is short (each game takes about 10 minutes) and quite challenging, even for an adult. Using the computer as both storyteller and taskmaster is a great idea, and this program would be a



terrific addition to any educator's software library. It suits classroom environments perfectly, although it's a little too closed-ended to make an ideal home educational program, unless you have a few kids who'll pass it back and forth.

All told, *A Bill Becomes A Law* does exactly what it intends to do. It teaches a lot about the American political scene with enough sugar coating to be palatable. Just don't tell the kids it's supposed to be educational!—TFH

SLIDE SHOW MAGICIAN 1.3

List Price: \$59.95. Natural Sound hardware and Natural Sound Editor software: \$129.95. Published by Magnum Software, 21115 Devonshire St., Suite 337, Chatsworth, CA 91311. (818) 700-0510.



SLIDE SHOW MAGICIAN WAS ONE OF THE FIRST graphics programs for the Macintosh, and it proved to be a useful and easy tool for creating visual presentations. Version 1.3,

an update, adds some interesting and useful features, but the program still has its own quirky user interface, something that could have been cleaned up by now.

Slide Show creates full screen audio-visual presentations from MacPaint documents using the 512 by 342 pixels of the upper left hand corner of the MacPaint page. Screens from any Mac program can be used, as long as screen dumps can be generated from within the program.

The program features a full range of wipe and transition effects between frames, and while no wipes have been added since the original program, there is a set of overlay effects that allow different types of transparency between screens (similar to the effects in *VideoWorks*). The frame editing portion of the program has been improved, allowing the user to scroll back and forth between frames from within any of the programs sections.

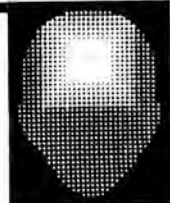
One of the most important new features allows "branching" buttons to be placed on the screen. These buttons can now be so large that they become clickable "areas," and they can be made invisible. They serve

as links to other frames, and even other shows. This allows *Slide Show* to be used to create interactive demos and tutorials.

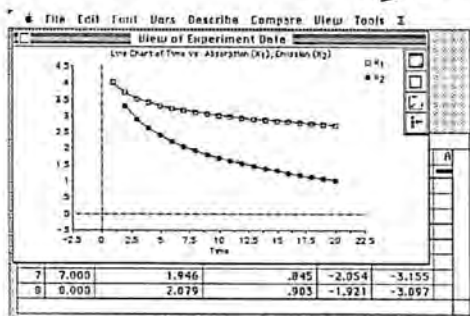
On the audio end, the program now uses Apple's *MacinTalk*, allowing synthesized speech to accompany visual presentations. Also available is an optional hardware device that lets presentation makers digitize sound from a tape recorder to add to their presentations. The digitizing, or more correctly, "sampling" system consists of a separate program that allows fine editing of the sampled sound, along with special echoing and looping effects. Sampled sound files take up lots of space, so it's a good thing that *Slide Show Magician* can now run off a hard disk or RAMdisk. Mac XL owners, take note: you can now use *Slide Show Magician* on your machines, too.

For some reason, Magnum Software insists on straying from the standard Mac interface in some areas. Desk accessories are not accessible from within the program, a major drawback. Still, this is a useful and easy to use product, and with its new features, it's also twice as capable as the original.—DB

Put power in your drives. **BRAINPOWER.**



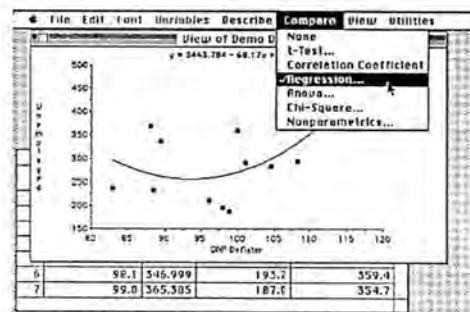
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MAC ART DEPT. ****

List Price: \$39.95. Published by Simon & Schuster, Computer Software Division, 1230 Avenue of the Americas, New York, NY 10020. (212) 245-6400.

THIS COLLECTION OF CLIP ART COMES PACKAGED IN A hardbound book that serves as a combination instruction manual, MacPaint tutorial and disk box. The Mac Art Dept. is a completely professional job, from its packaging concept to its images to the informative 96-page manual that adopts a detailed, helpful approach to novice Mac artists. The book illustrates unusual ways to use the disk's MacPaint images and explains how to do it with an emphasis on good design concepts ("Don't be too heavy-handed," warns author Tom Christopher,



referring to one of many illustrations. "Let a simple idea breathe.")

An appendix shows printouts of all 18 Mac Art Dept. screens, which range in subject from "America" (Uncle Sam, the Statue of Liberty, a three-dollar bill with a hole in the center and more), to "Animals," "Music," "Seasonal" and "Hands & Signs." All in all, the disk includes over 150 graph-

ics, grouped close together on each page. Other files are "Buildings" (tiny townlike structures, a single large home, the White House and the New York City skyline), "Food" (the most realistic group of the bunch), "Household," "Insects" (Why?), "Desk" (including a Mac, of course), "Objects" (two watches, a typewriter, a toothbrush, etc.), "Personal" (nothing kinky here, folks), "Plants" (here neither), "Tools" and two "Travel" files.

The pictures' proportions aren't relational, meaning that this program is better suited to creating letterheads (or other artwork requiring a few highly detailed images) than it is for creating complete pictures (a near impossibility). The Mac Art Dept.'s images really shine when used for personalized letterhead (choose from 17 borders), fliers, illustrations for desktop publishers, or as idea fodder for home greeting card makers.—TFH

DEJA VU ****

List Price: \$39.95. Published by Rubicon Publishing, 6300 La Calma Dr., Suite 100, Austin, TX 78752. (512) 454-5004.

REMEMBER "CONCENTRATION," THE OLD GAME SHOW that challenged contestants to pick two squares off a large grid, searching for an exact match between words, pictures or cash bonuses? Well, old TV game shows don't necessarily die—they just get reincarnated on computer screens.

Rubicon's *Deja Vu* is a well-designed, nicely executed rendition of the card game most of us played as children. While the concept is hardly original, *Deja Vu*'s execution is outstanding, making this memory exercise seem fresh and innovative. Clean,

professional graphics and sound effects add to the excitement of two-player competitions or solo play against the computer.

The only slight annoyance is during the opening sequence, when players type in their names. "Type" is really the wrong word, though, since you have to mouse over to each letter and click to select it, instead of being able to just type in the letters on the keyboard.

The game play is simple: Mouse to one of the squares on-screen and click to select it. Hidden under each square is a symbol. Players who choose two exact matches earn a point and the chance to try again. As matches are made, the squares disappear, making the game progressively easier until only two squares remain. These are automatically awarded to the side that made the last perfect match.



Options include solo, two-player, or human against computer contests, and the gamer can choose pictures, words or numbers as the symbols hidden under squares.

Deja Vu is a light, easy to play pastime that just might improve your powers of "Concentration" (pardon the pun).—TFH

THE MACINTOSH REFERENCE SYSTEM ***

List price: \$109.95 entire system; \$59.95 database (requires Microsoft File); \$64.95 card deck; \$11.95 wall chart. Published by TOM Programs, 34-U, 1500 Massachusetts Ave. NW, Washington, DC 20005. (202) 223-683.



PROGRAMMING THE MAC IS A REAL CHORE. ASIDE from the basics of whatever language is selected, there are the hundreds of Mac-specific ROM calls, routines and data structures that must be mastered and used. The trap calls and routines are what really make the Mac interface the amazing thing that it is. Using them, and using them correctly, is necessary if a program is to follow and use the Mac interface properly.

All this information is included (some would say buried) in *Inside Macintosh* and other technical documentation but its organization is usually sketchy. Programming thus involves much page flipping and sometimes a better way or easier way to do something is simply not found. The *Macintosh Reference System* solves many of the organizational difficulties and is a major aid to better programming.

The system consists of two major components. The first is a set of 750 color coded index cards containing information about the trap calls, routines and data structures. The information ranges from a name and

Inside Macintosh page number to how the item uses the 68000's registers to all the other information that a programmer needs. Other calls and routines usually associated with the chosen item are listed along with a fairly clear and concise explanation of what the subject does. The cards can be sorted and arranged to help clear up programming problems.

The other major portion of the system consists of the same information that is on the cards, this time in the form of a 750-record Microsoft *File* database. This version can be searched on any field for just the trap call, routine or data structure that is needed. Users can then go to the card deck and start pulling appropriate cards. There is also a wall chart that contains much cross-referencing information.

The system is easy to use and well done. Even novice Mac programmers should find it valuable, as its explanations and cross reference are available no where else. The information here can substantially ease the first steps in Mac programming.—SB

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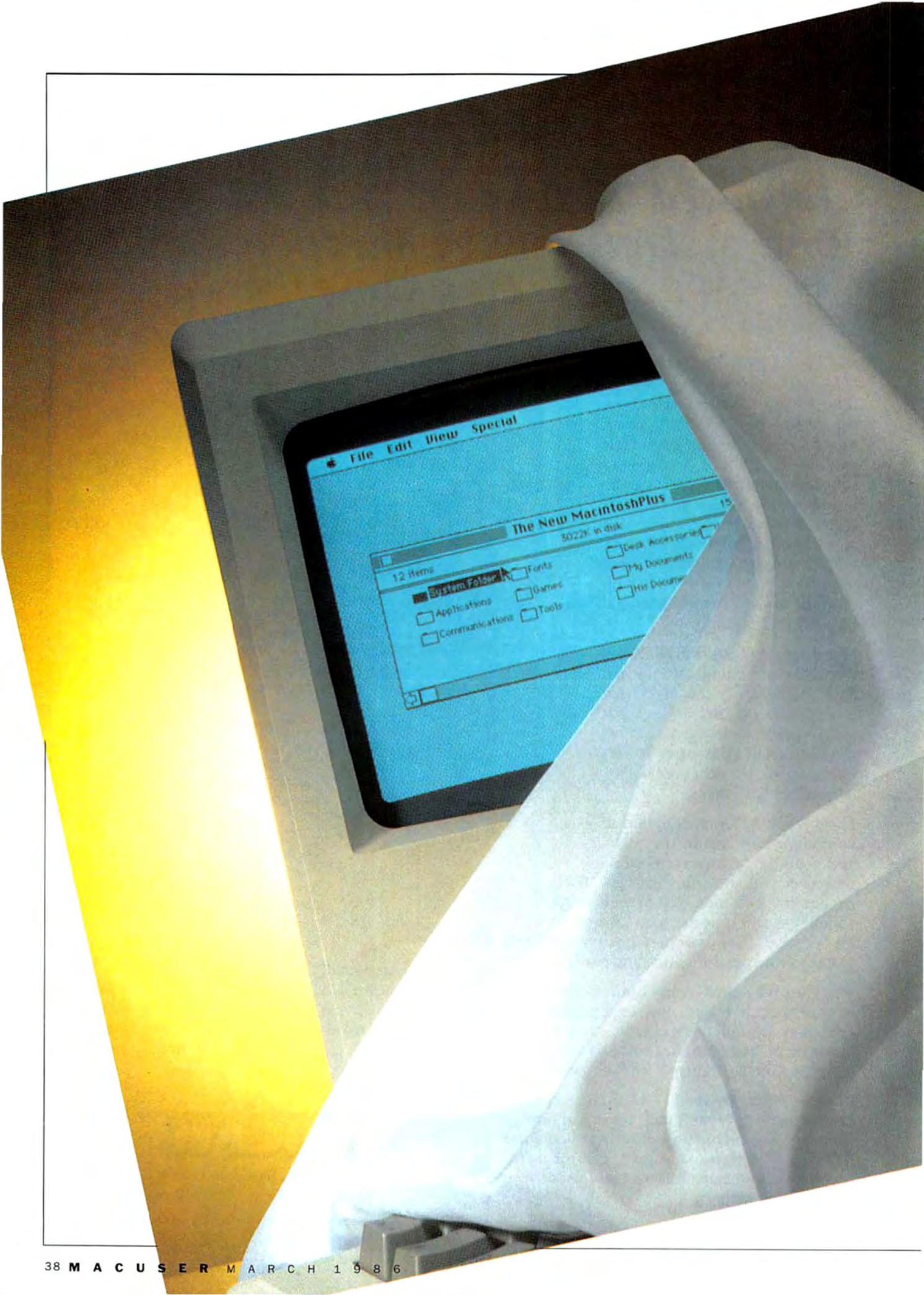
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MicahDrive AT 20"	\$1895.
MicahMemory 2/4" Card, 2 mb RAM	\$ 595.
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MACINTOSH PLUS!

Why 1986 won't be like 1984.

RUMORS FLEW FOR MONTHS. Everything you ever wanted in a personal computer was going to be there. Indeed, "someone" had seen each and every one of them! And computer news magazines reported them all, breathlessly. Finally, after leaks and denials and "no comments," the stuff of government, big business and spy novels, the Macintosh Plus appeared on January 16, 1986.

This new Macintosh is the answer to many of the complaints that dogged the first Mac. It isn't everything to everyone, but is significantly better than existing Macs and all existing Macs can be upgraded to the new standard.

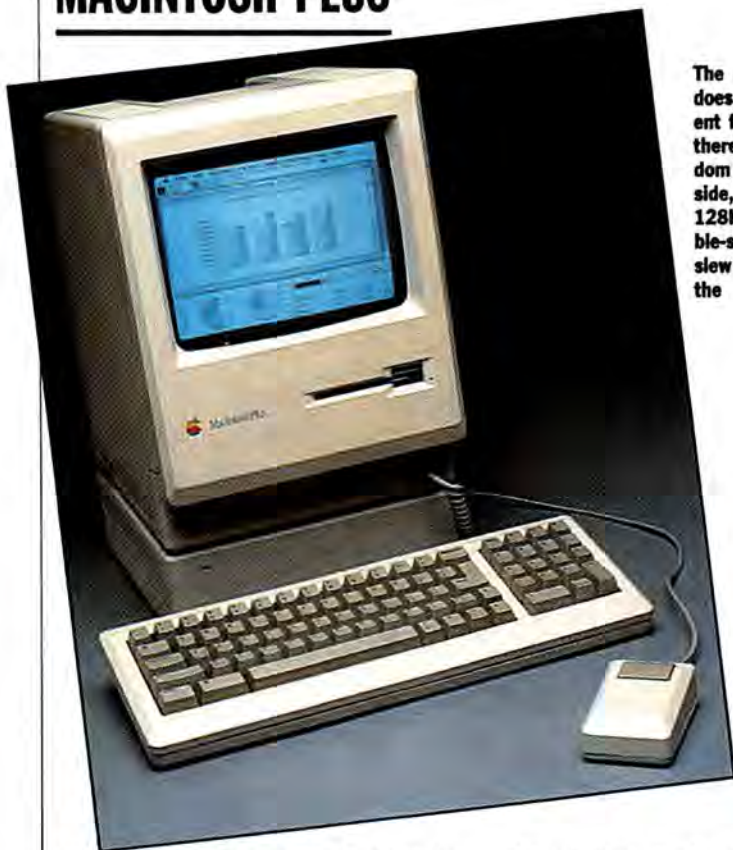
WHAT WAS

The first Macintosh was never the computer that Apple expected it to be. It did spark a revolution and a new generation of personal computers, but it never made it in its intended market. Instead of selling into the corporate offices of the Fortune 1000, Macintosh found a place among entrepreneurs, small business people and people in the arts. Instead of serving as a front end

PACKED WITH POWER

by Michael D. Wesley

MACINTOSH PLUS



The new Mac Plus. It doesn't look much different from the outside, but there's a megabyte of random access memory inside, along with the new 128K ROM, an 800K double-sided disk drive and a slew of new connectors on the back.

to a Lisa-based network, Mac became the cornerstone of Apple's 32-bit product line. And instead of appealing to an audience content with the low-end capabilities allowed by its 128K RAM, the Mac has been devoured by users who want easy and fast access to the information revolution.

Apple finally became aware of the real Macintosh market, and is following a path successful in the past with the Apple II line. The new Macintosh Plus incorporates advances in technology and direct responses to market needs, yet retains the greatest possible degree of software and hardware compatibility for easy upgrading. As of press time, the price was \$2799, complete. Apple has changed prices at the last minute in the past, but given its new management, that price is as likely to go down as it is to go up. No matter what the price, you get a lot of computer for your money. The Macintosh Plus is expected to begin shipping simultaneously within the United States and to the UK, France, Italy, Sweden, Germany, Spain, and Australia on January 23rd. 512K Macs will still be sold in their current configuration at a re-

duced, but undetermined at press time, price.

WHAT IS

The basic concepts of the Macintosh Plus are enhanced speed, storage and expandability. These concepts are expressed in increased user and system memory, revised and improved System software, larger capacity disk drives, new interfaces, a new keyboard and an upgrade path for existing Mac owners (see *The Road to Mac Plus*).

Taking advantage of 256K-bit RAM chips, the Macintosh Plus comes with one megabyte of RAM on its digital (or logic) board. Everything on the logic board of the Mac Plus is soldered into place for the sake of reliability, except the RAM and ROM chips, which are socketed to allow easy upgrading. The new board still uses the Motorola 68000 central processing unit, but is otherwise a totally new design.

The new RAM is modular, contained in four plug-in packs (called *Single Inline Memory Modules*, or SIMMs) of 256 kilobytes each on the Mac's revised mother board. The amount of RAM can be expanded to 2 or 4 megabytes by replacing the

modules with larger capacity chips as they become available. The larger memory means that more program information and data can remain in memory, thus reducing the number of times that a program has to access the disk. As users who have installed third-party memory upgrades know, increased RAM helps speed up operations considerably.

Existing Macintosh software that follows Apple development guidelines will recognize and access the full megabyte of RAM. Other programs that do not follow Apple's specifications may not be able to use the full amount of RAM without revision.

The Mac Plus will also be shipped with the new 128K ROM and revised System software. Apple's Hierarchical File System (HFS), shipped on disk with the HD-20 hard disk, is now incorporated in the ROM, as are drivers for the HD-20 and 800K double-sided disk drives. The Mac Plus version of HFS is cleaner than the earlier version, and because it works from ROM, it is about 25% faster and takes no RAM space away from applications or data.

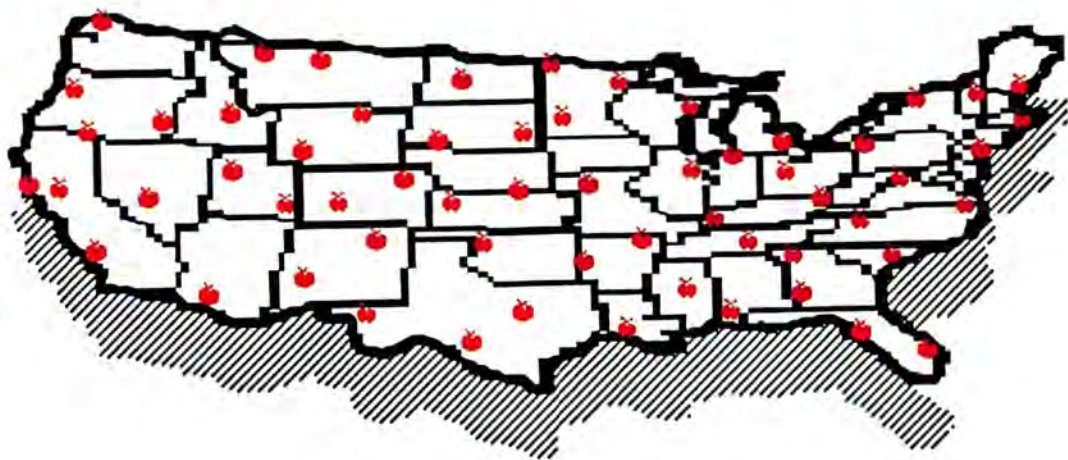
The 128K ROM has two other features designed to improve the speed of operation of Mac programs. QuickDraw routines, used for screen drawing and animation, have been optimized for speed, and several numeric "packages" are built into the ROM for faster computation. Instead of requiring all numeric operations to be written into each application's code, floating point arithmetic and transcendental functions, among others, can now be called directly from ROM.

To take advantage of the new ROM and other features, Mac Plus will have new System software including Finder 5.1. This is essentially the same as the Finder 5.0 shipped with the HD-20, but tweaked to eliminate bugs.

One of the most interesting features of the new System software is built-in caching. The RAM caching software takes routines that the System uses over and over, such as launch and quit information, and stores them in RAM so the Mac Plus

(continued on page 96)

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Talking About MAUG!

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—Jeffrey Young, *Macworld*

"The undisputed best spot to hunt for Macintosh software is the Macintosh section of the CompuServe Micronetted Apple Users Group (MAUG) SIG."

—John Markoff, *Byte*

"Dare I assert that all that is good about the hacker ethic is alive and well and living on CompuServe?" —John J. Anderson, *Creative Computing*

"Wondering where to get a ramdisk for your Fat Mac? Well, at the risk of sounding like a broken record, you can download it from CompuServe if you are a member of MAUG. More likely by now the question may be, why aren't you a member of MAUG?" —John J. Anderson, *Creative Computing*

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If your computer has a modem peripheral and can use the telephone line you can join in on all the MAUG excitement! Presently three huge electronic bulletin-board areas await your joining. Each area has room for hundreds of public messages, thousands of programs to share and a real-time conference line. The three MAUG areas include:

- The Macintosh Users Group Forum: A lively area for Macintosh owners to meet and share thousands of programs and files. Subtopics include hardware and software, games and graphics, music and business. Whether you've a Fat Mac or a skinny one, a Lisa or a Macintosh XL, you'll find MAUG as indispensable as your mouse!
- The Macintosh Developers Forum: Whether you're developing hardware or software for the Macintosh you'll be in on instant updates to the *Inside Macintosh* Software Supplement, informal support direct from the Mac Team in Cupertino, as well as being able to meet hundreds of your peers for in-depth information exchanges.

• The Apple II And III Users Group Forum: MAUG started in 1979 about the Apple II. And, with us, it's been a neverending love affair. These 8-bit, wonder machines are as exciting as ever and MAUG proves it with hundreds and hundreds of messages related to hardware and software, games and graphics, power business uses and more — not to mention the thousands of programs and files available.

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MAUG is available on the CompuServe Information Services network. To buy a CompuServe Starter Kit, see your nearest computer dealer. To receive a CompuServe brochure, or to order direct, call or write: CompuServe, P.O. Box 20212, 5000 Arlington Centre Blvd., Columbus, OH 43220 1-800-848-8199 (In Ohio: 1-614-457-0802). Once on CompuServe the command GO PCS-51 will take you to our front door.

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MEANINGFUL RELATIONSHIPS

Relational data managing, ease of use, speed.

It's all spelled Omnis 3.

ON JANUARY 24, 1984, APPLE COMPUTER made some outrageous claims about the future of computing, and introduced its solution, a little box called Macintosh. At 128K ringing wet, that box was no heavyweight. It wasn't until many months later and the introduction of the 512K Mac, that the machine began to fulfill early expectations.

Now, second-generation applications such as *Excel*, *Helix* and *Page-Maker* hold their own against any software on any personal computer. A good measure of the strength of a computer is the power of its top relational database managers. And now *Omnis 3* pushes the Mac to new heights.

This product, from Blyth Software of Great Britain, is a high-performance, multiuser, relational/hierarchical database manager. Included is a complete programming language, advanced multiuser support with record-level locking, pass-

word security, easily customizable report formats and the capability to work with huge files.

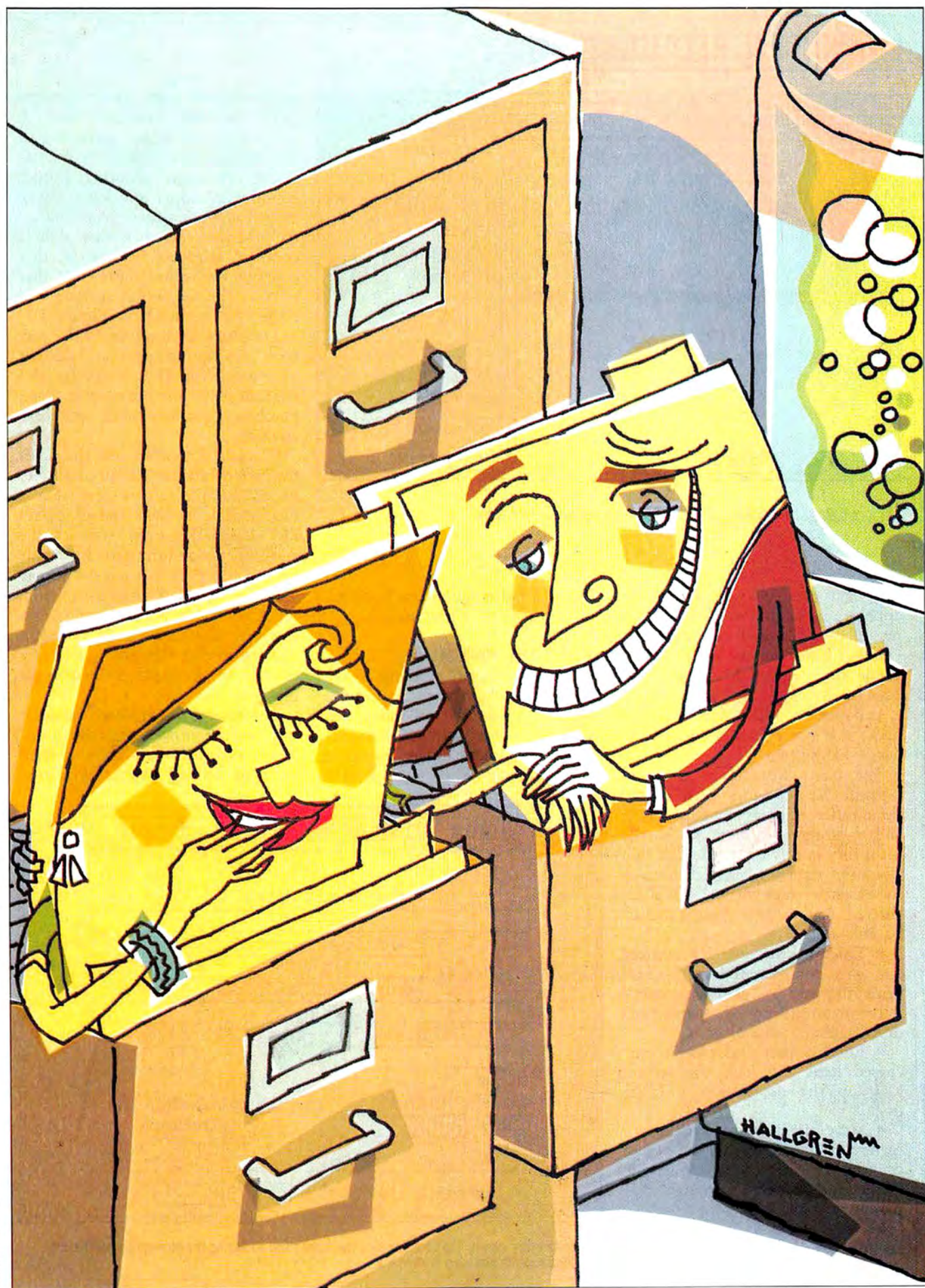
What can *Omnis 3* do? Here, we've set up a complex problem that cries out for a relational database solution.

The task will be to put together a system to help manage many business functions in a small auto parts store, Acme Auto Parts, including inventory of parts, customer balances and invoicing. The system should be developed in a very short period of time.

OMNIS 3 FILES

Omnis 3 makes use of two types of files: *library* files and *data* files. The library file is the "Master" file of an *Omnis 3* database. No data are stored in a library file, but all pertinent details of the database are kept here: entry layouts, file formats, report formats, passwords and sequences. The actual data are stored in a sepa-

by Steve Maller



MEANINGFUL RELATIONSHIPS

File Edit Options Acme Auto Parts Amend file format					
File format CUSTS					
	Name	Type	Length	Dps	Indexed?
1	BUSNAME	Char	35		YES
2	CONTACT	Char	18		NO
3	ADDRESS	Char	35		NO
4	CITY	Char	16		NO
5	STATE	Char	2		YES
6	ZIP	Char	5		YES
7	AREACOD	Char	3		YES
8	PHONE	Char	8		NO
9	IDNUM	Char	3		YES
10	CURRBAL	Number		2	YES
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Field number 10
 Field name CURRBAL
☐ Character
☐ National
☒ Number
☐ Boolean
☐ Date
☐ Time
☐ Sequence
 Field length
 Decimal places 2
☒ Indexed
 Index length 6

Fig. 1: A listing of the fields (and their attributes) found in the CUSTS file.

rate data file. Even in a multifile application like the one here, there is one library file and one data file. *Omnis 3* maintains the multiple files inside one regular Macintosh file. This is why *Omnis 3* is so fast, since it bypasses the performance bottlenecks that sometimes occur in the Mac's file system.

The plan of attack is to build separate files to track each of the three different areas: invoices, parts and customers. "Invoices" is the main file, as this is the file that will "look up" data and make changes in the other two files when an invoice is entered. Acme Auto Parts wants to be able to:

- Enter a customer ID number and have the system look up and print the rest of that customer's information (business name, address, contact person, etc.).
- Enter a part code for a purchased item and have the system look up the description and the price.
- Have the system check for a requested part's availability before printing an invoice; aborting the invoice and posting a warning if that part isn't available.
- If the part is in stock, debit the inventory and print the invoice.
- Update the customer's file.

This is a rather ambitious undertaking, but it's easy with *Omnis 3*.

LAYING THE FOUNDATION

The first step in building a database is to create the file formats. *Omnis 3* allows the following field types in a file format: character, national, numeric, date, boolean, and sequence. A national field is

essentially the same as a character field, but with one exception: A national field is sorted according to the Macintosh's built-in "International" resource, ensuring proper handling of upper and lower cases, as well as foreign characters. Character fields are sorted by their ASCII codes. A sequence field is one that contains the record number of that record. The file format for the customer file is shown in Figure 1.

The parts file has four fields: part code, description, price and current inventory level. The invoice file also has four fields: invoice number, date, purchase quantity and purchase amount.

Of equal importance to the fields themselves are the connections between the files. It is here that a hierarchical database system makes life easier. We must connect the customer file and the parts file to the invoice file. This is done by simply selecting SET CONNECTIONS from the Amend File Format menu. This connection scheme alerts *Omnis 3* that the invoice file will be referring to data in the parts and customer files.

This feature is actually so simple it can confuse power database users. Most seasoned users have devised ways of setting connections in a

Acme Auto Parts Customer Record

Business Name

BUSNAME

Contact person

CONTACT

Business Address

ADDRESS

City

CITY

State

S

Zip

ZIP

Area Code

(AR)

Phone

PHONE

Customer I.D. Number

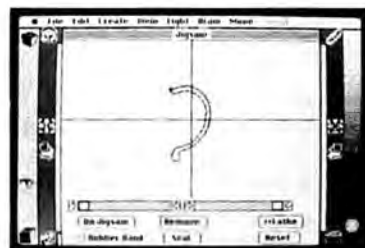
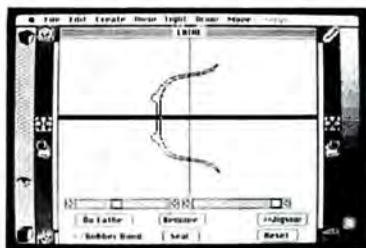
IDNUM

Current Balance:

CURRBAL

Fig. 2: An entry layout. The boxes around the screen and enclosing the screen title are the only graphics accents available in *Omnis 3*.

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- PageMaker,[™] LaserWriter,[™] ImageWriter[™]

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MEANINGFUL RELATIONSHIPS

manual fashion, so *Omnis 3* is like an automatic transmission for someone who has always driven a stick shift. The connections could be made manually by manipulating record pointers, but why not take advantage of the technology?

NOT EXACTLY OBVIOUS

The next step is to design the entry layouts, the screens that users see while entering data. These layouts are quite flexible, with a small amount of graphic capability to jazz things up a bit. (Figure 2 shows the actual entry layout for the customers file.)

Omnis 3 provides rectangle drawing capability to allow entry screens to appear more like their real-life counterparts (paper forms). One drawback of these graphics is *Omnis 3*'s inability to print entry layouts and their associated graphics, even on the ImageWriter. You can print a summary of the layout, but could not, for instance, use this entry layout itself as an invoice. More often than not printing is handled using one or more report formats.

There is a lot of flexibility in positioning the fields and message text in the entry layout. Twelve of these screens are available with each entry layout, allowing many different forms to be incorporated into a single layout.

SELECTING SEQUENCES

Entry layouts can also have sequences associated with them. A sequence is a series of *Omnis 3* commands, as well as control structures, (IF...THEN...ELSE, REPEAT UNTIL..., etc.) invoked by the press of an on-screen button or selection of a menu item. Each of the 12 screens can have up to eight buttons, and the entry layout can have one menu associated with it. A total of 99 different sequences can be called from each entry layout.

The "programming" of *Omnis 3*'s sequences is unlike any other micro-computer language. Even novices will find it easy to construct sequences that work the first time. Unlike the line editors or full-screen editors included with most program-

(continued on page 111)

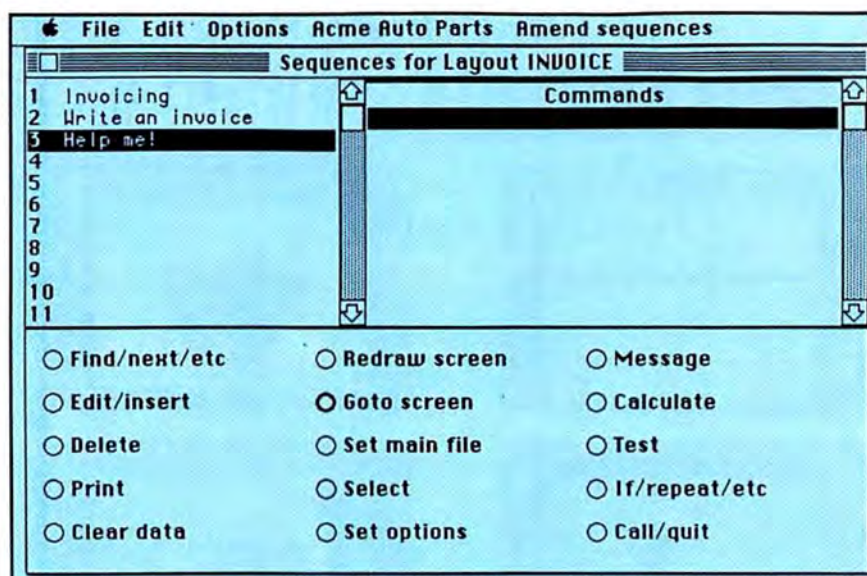


Fig. 3: Sequences consist of combinations of the commands visible in the lower window. Sequences are essentially equivalent to macros.

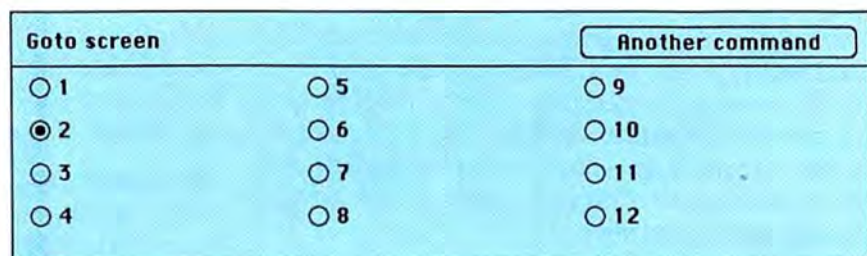


Fig. 4: Selecting the Goto Screen command while writing a sequence summons this window.

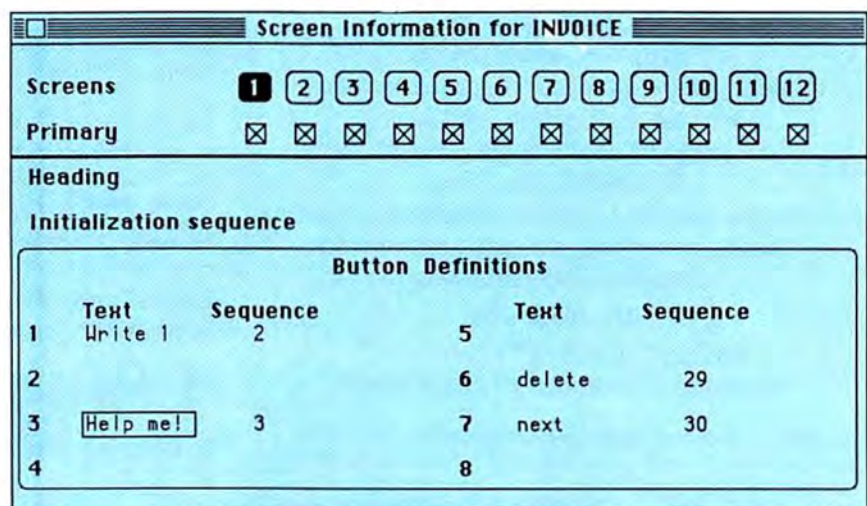


Fig. 5: The Screen Status window. All 12 screens of the invoice window are active, and there are 4 sequences specified for the file.

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- Check Syntax only of a program

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THOUSANDS OF FILES, DOZENS OF TILES

by
Tom
Marema

Relational database

power and an icon-

driven design make a

great combo.

ALL DATABASES ARE ALIKE. They're based on the (boring) metaphor of an electronic filing cabinet that you access, with a sequence of (arcane) keyboard commands, to create files that are similar to folders and consist of records of various types.

You enter, store, retrieve, analyze and print your data from those records—without (hopefully) crashing the program or losing any of your entries along the way.

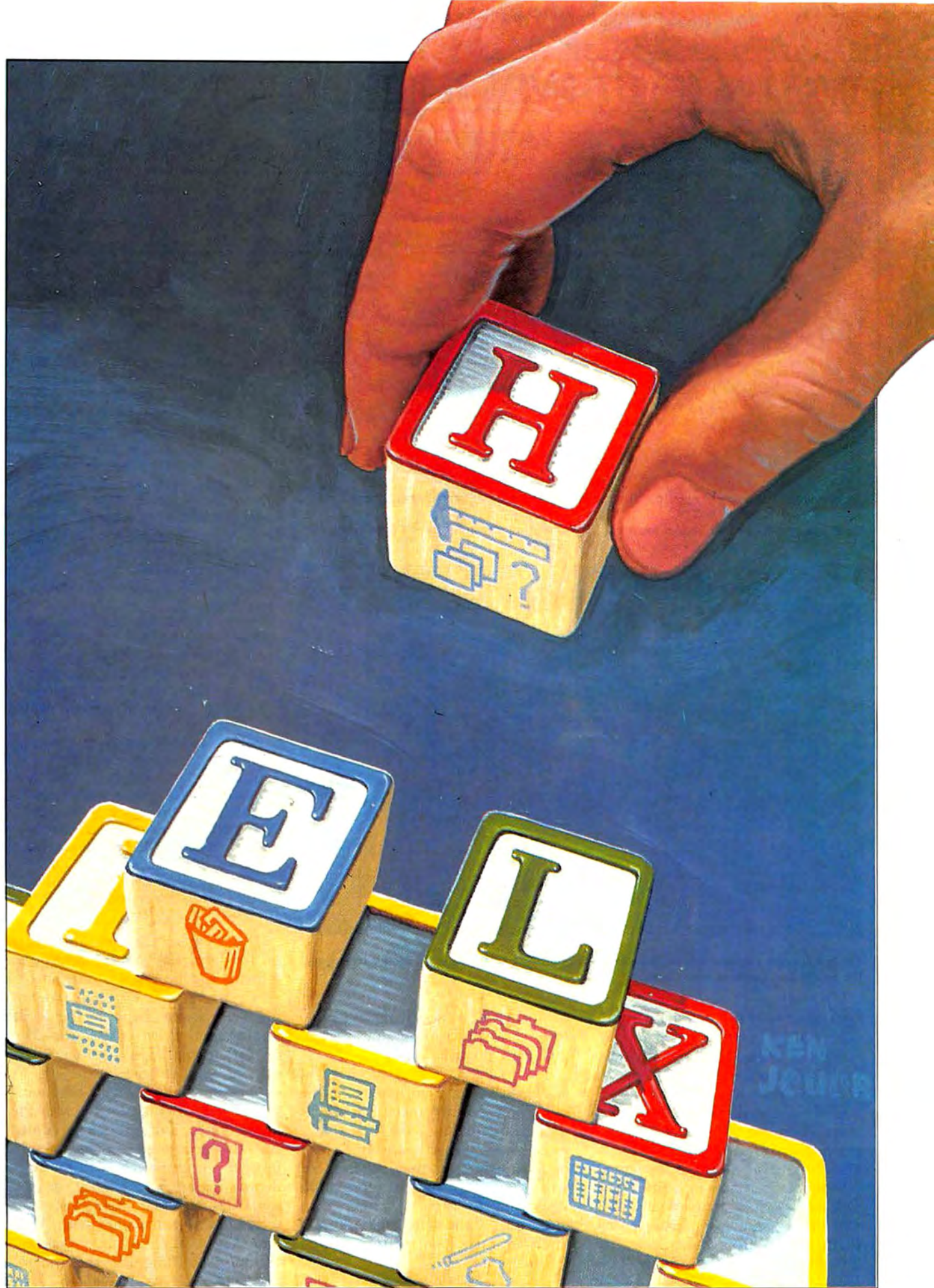
Right? Wrong. At least not in the Macintosh world. That becomes obvious once you start working with Odesta's *Helix*. *Helix* is a sophisticated relational database manager that is, to coin a word, icon-driven. Icons, of course, are among the most fundamental building blocks of the Macintosh user interface. In working

with icons, we almost take them for granted as symbolic conveyors of information—forgetting that this visual process is easy to comprehend and extremely powerful.

Databases can be, and usually are, veritable storehouses of information, representing the entire knowledge base of an individual, company or large institution. To build a database management system largely with icons is an amazing design and programming feat in itself. And if that database manager is also relational, allowing users to interconnect and correlate data from record to record, the results are truly impressive.

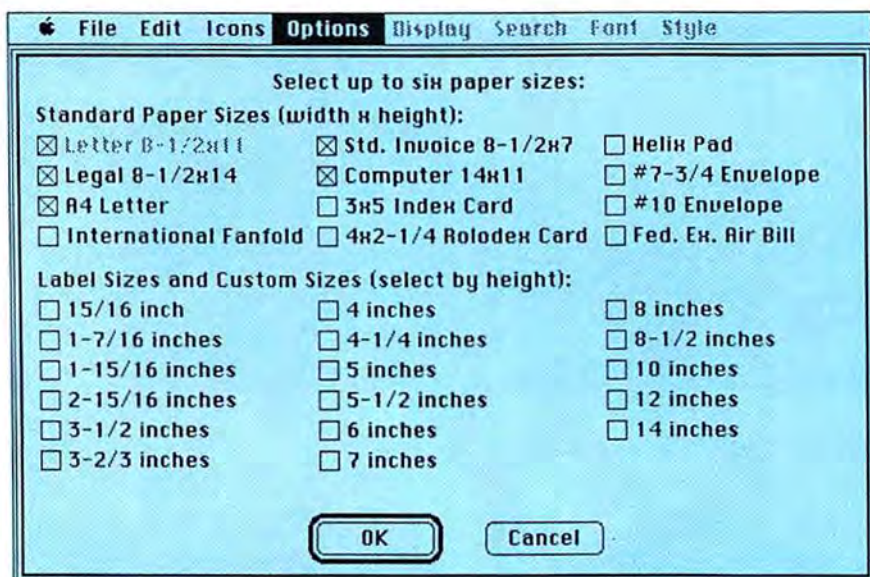
Quite simply, there is nothing comparable to *Helix* on the Macintosh or, for that matter, on any other microcomputer. In its current version, *Helix* 2.0, it includes a number of additional features and enhancements, and sets the standard for power, ease of use, and flexibility in a fully relational database management system.

Yes, but what can you do with *Helix*? That's the question most often asked among Macintosh users. Given the power and flexibility of the program, the question should be turned around: what can't you do with *Helix*? The program seems to

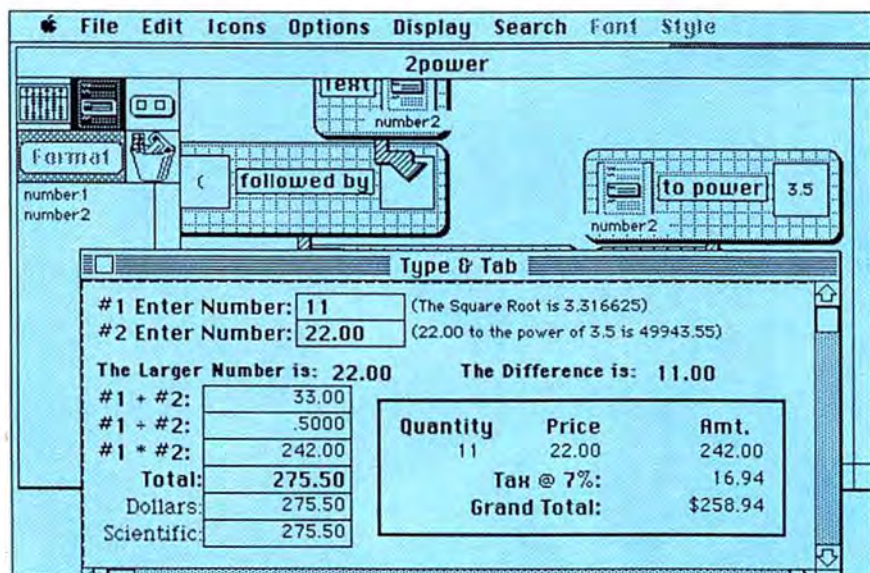


KEN JOUDREY

THOUSANDS OF FILES, DOZENS OF TILES



Users can install up to six custom paper sizes. They will then appear in the PAGE SETUP dialog box.



This is a data entry screen. Entering the numbers triggers the calculations in the 2power screen, and the results are displayed immediately.

be limited only by the boundaries of our own imaginations.

Typically, you can use *Helix* to build a complex database that can track the sales and monitor the finances of a small to mid-sized company. *Helix* can provide almost anything that company may need, from analyzing cash flow to managing personnel or controlling inventory. Odesta describes *Helix* as an "individualized knowledge base," and that's not far from the mark. *Helix* 2.0 allows you to customize your

company or business without having to learn a special programming language to do it.

The beauty of the program is twofold. Rather than relying on the old filing cabinet metaphor as its means of depicting a database, *Helix* is really its own metaphor. It lets you build a database that reflects the symbolic nature of the information you want to process, rather than imposing some pre-existing—and often antiquated—structure on that information.

FURTHER TWISTS

The people who developed *Helix* have some ambitious plans to expand their product's range and abilities. The first new enhancement they plan to introduce (in the first quarter) is to be called *Double Helix*. It will be sold to developers only, and will enable them to create specialized *Helix* templates with custom menus, subforms, password security, and the ability to import and export files in both DIF and SYLK formats. There is also the promise of further speed increases.

Double Helix will be available as an under \$200 (list) upgrade to *Helix*. The templates that developers produce using it can then be sold along with *Run-Time Helix*. That product, which should also be available in the first quarter, will be sold on a license basis, and will allow developers to sell their templates at reasonable cost to users who don't have and won't have to buy *Helix*.

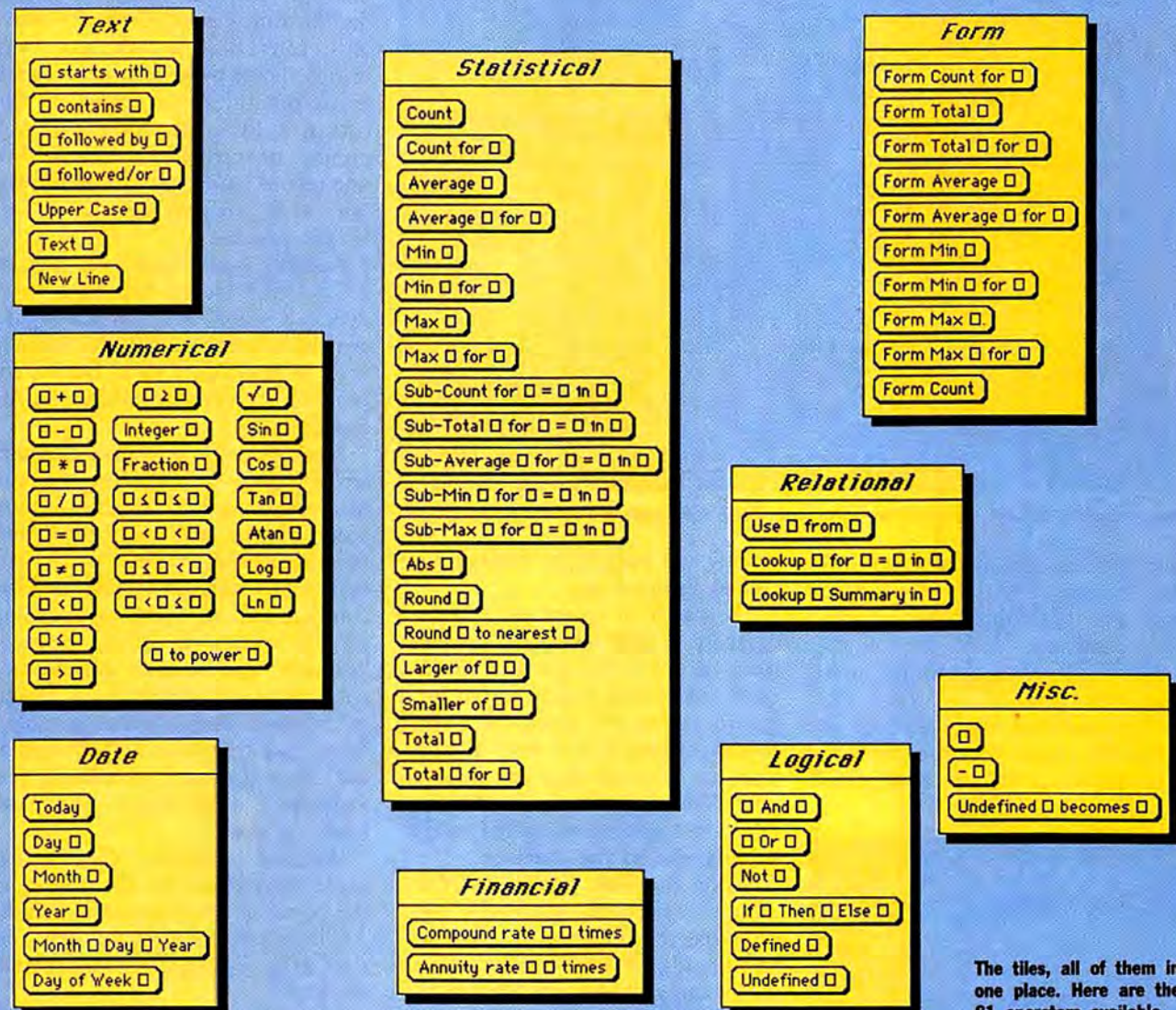
Further down the road are *Multiuser Helix* and *Remote Helix*. The first of these will allow multiple users, connected either by AppleTalk or other local area networks (including one under development at Odesta). *Remote Helix* will allow multiple users to access a copy of *Multiuser Helix* via phone lines.

It was enhancements of this nature that made *dBase II* the enormous success it was and is in the IBM world. Now *Helix* seems to be making a strong bid to follow that road in the Mac world. We'll be letting you know about these products as they are released.—SB

The program also simplifies what in the past has often been quite difficult and time-consuming in database management systems: defining calculations between fields of information. With *Helix*, just click on an abacus icon to define the calculation you want.

Fundamentally, *Helix* works with forms. The user designs forms for input, query and report generation. But the program lets you design those forms intuitively, without having to define field lengths or any special parameters. Draw lines and rectangles as you would with *MacPaint* or *MacDraw* by pointing, clicking and dragging the mouse.

THE TILE PILE



The tiles, all of them in one place. Here are the 81 operators available.

When they're finished, label them to create any kind of form you want.

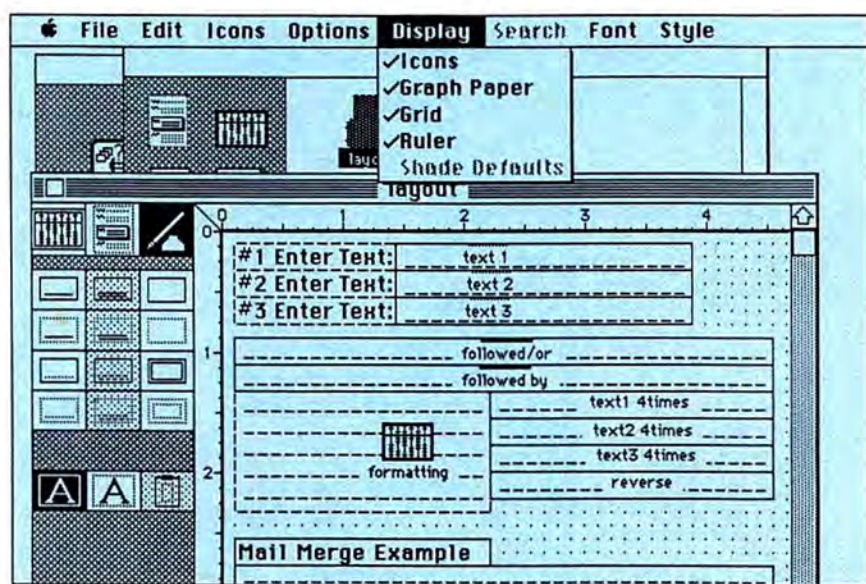
In those forms and behind every piece of information in a *Helix* database, behind every field that is specified, there's an icon. And each icon has certain definitions and attributes that have been specified. To manipulate and query data, for example, simply point and click on those icons. By dragging them from window to window, you'll begin to establish relationships among various forms that you've created. This is pretty much the way *Helix* works—using the mouse, not the keyboard, to manipulate icons and multiple windows on the screen.

To perform a series of complex calculations—arithmetic and Boolean operations, including conditional strings, just move these icons into any one of over 80 different tiles. These tiles, depicted on-screen as rectangles with arrows emerging from them, can be used as logical blocks of information, resembling the way you would diagram information in a flow chart. The results of those calculations then flow from one tile to another. Because the tiles are visual representations of certain operations, or calculations, you stand a good chance of making less errors than you would if you used a series of complicated algebraic for-

mulas in a command language-oriented database manager. You also get to see, tile by tile with connecting arrows, the relationships built in the database, as well as the calculations you are making.

To create a database with *Helix*, the user works with six icons that are identified as field, abacus, template, selection, index and query icons. It may take a little time to get familiar with how these icons work. But once you've mastered the basics, *Helix* follows a very logical, systematic method for entering, storing and querying data. It lets you store text, numbers, dates, values and even pictures. And you can add, change or

THOUSANDS OF FILES, DOZENS OF TILES



Record layout is simple, using the tools provided. These techniques are extremely versatile.

delete fields of information after they've been entered, which gives you added flexibility in building your database.

Helix 2.0 is designed for maximum interactivity, so that after you've mastered the basics of the program's iconic structure, the speed at which you're able to create, build,

modify and manipulate databases increases dramatically.

To search or query records in a database, either click on a query icon, or pull down a menu to do a quick query and rapidly search for a record or set of records that meet specific criteria in one field. In addition, any changes that you make to your *Helix* data are dynamically updated in every record linked to that information in the database.

When the first version of *Helix*, 1.0., was released, Macintosh users criticized the program, for two reasons: lack of execution speed, which meant sluggish performance due to a lot of disk accessing, and also, because the program itself took up so much disk space. Odesta has addressed those criticisms with a leaner, meaner and faster *Helix* 2.0 with more features.

You still need a 512K Macintosh and an external drive to run the program, and for any serious database applications a hard disk is recommended. But with a new generation of hard disks coming to market at competitive prices, *Helix* becomes more practical for more business users since performance also improves by at least a factor of three or four on a hard disk.

Helix 2.0 delivers the additional power of storing pictures as part of your database. *Helix* accepts any graphic that can be pasted in from

the Clipboard, meaning that any pictures, such as company logos, digitized images or schematic drawings, can be stored as part of a record. These pictures may be added as decoration on a form, or can occupy fields in the database. Any number of pictures can be stored in one record, and they can be printed out with ImageWriter or LaserWriter printers.

Another new feature in version 2.0 is Quick Query, which lets users define a search without having to switch between windows. After a field is selected, Quick Query appears as a command option on the Search menu.

More than 20 new calculation tiles are included in the new version, many with special functions that, according to the company, have been requested by *Helix* users. Particular tiles, such as "Undefined becomes," can be used to speed-up certain operations; others, such as "subtiles," can be used to reduce or eliminate large numbers of abacus calculations. Tiles like the "text tile," "new line tile," and "followed/or tile" were designed to enhance text formatting, mail merge and form letter capability.

Without question, Odesta has made every effort possible to extend the power and functionality of *Helix* 2.0. It is also offering the new version as a free upgrade to current owners.

Helix 2.0 comes with a Quick Start manual which helps novices move quickly through the basics of the program without insulting a user's intelligence. The documentation, on-line help, and even an audio cassette for a guided tour of the program are all exceptionally well done. Odesta deserves high marks for its commitment to excellence.

For many Mac users, *Helix* may be the first step in a growth path toward building custom database applications of their own. With its Smalltalk-like, object-oriented approach to storing and manipulating information, *Helix* lends itself easily and naturally to the database process. *Helix* could easily become the engine that drives a host of other database applications. □

HELIX 2.0: REPORT CARD

Overall Rating: ●●●●

Follows Mac Interface:	●●●●●
Printed Documentation:	●●●●
On-Screen Help:	●●●
Performance:	●●●●
Support:	●●●
Consumer Value:	●●●●

Comments: Relational database that makes extensive use of icons and the Mac interface.

Best Feature: Ease of using relational features.

Worst Feature: Very complex, so learning effective use takes a while.

List Price: \$395.

Requires 512K and external drive; hard disk recommended.

Published by Odesta, 4084 Commercial Ave., Northbrook, IL 60062. (312) 498-5615.

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THE BEST LAID PLANS^{OF} MICE AND MEN



**Robbie Burns didn't
need project
management, but
today's businesses
sure do.**

BY ROBERT R. WIGGINS

ENGINEERS DO IT. MBAS DO IT. Even software developers do it.

The teams that launched the satellites used it. It put men on the moon. The Space Shuttle uses it. And so can you.

Project management used to be something for really big computers. Then IBM PCs could do it. And now the Mac can do project management, and do it well, and do it with the right stuff.

Project management has been around for some time. It was originally used by engineers who had to keep track of large projects with hundreds of component tasks, and has since been adopted by software developers, MBAs, and anyone with a large, complex job to accomplish and a need to be able to track project

progress. Over the years several methodologies have been developed for project management. Most users prefer PERT (Project Evaluation and Review Technique) or CPM (Critical Path Method).

To use PERT, a project is divided into its component tasks, which are arranged in a network that indicates for each task which other tasks it depends on, and which tasks depend on it. The network can then be used to track the project, and tasks can be scheduled to start when those they depend on are finished.

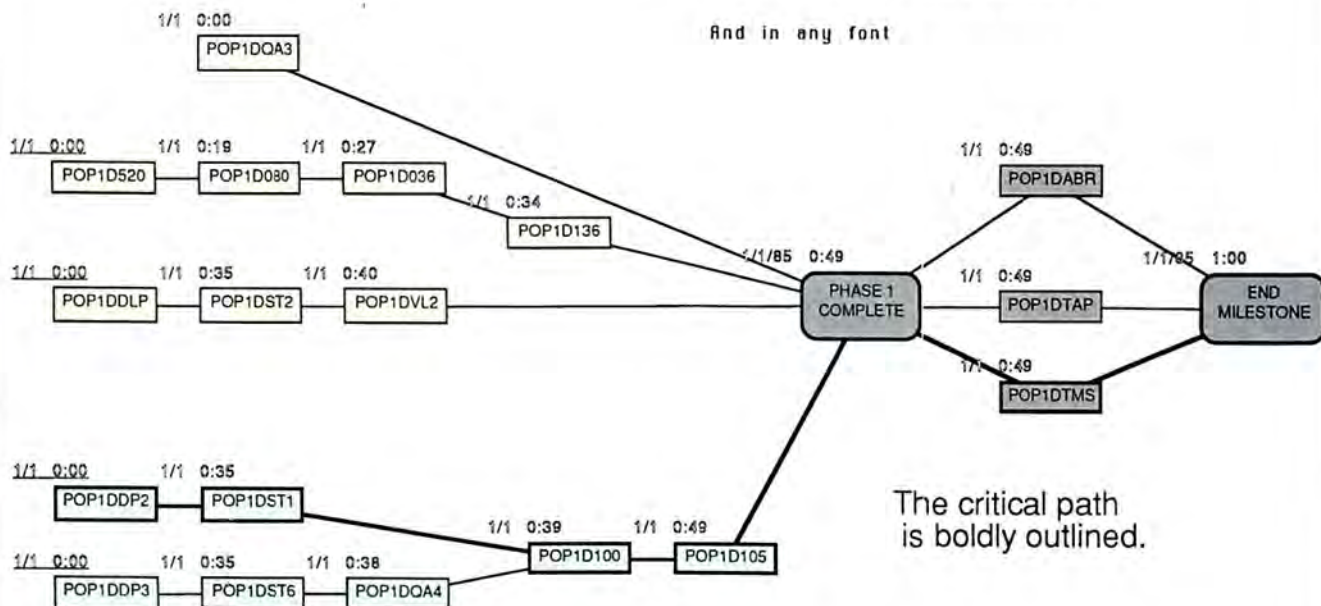
CPM is a subset of PERT, in that tasks are laid out in a dependency network. However, in CPM, the duration of each task is also recorded so that the length of the project can be calculated from the sum of the



THE BEST LAID PLANS OF MICE AND MEN

Comments can be entered anywhere

And in any font



The critical path is boldly outlined.

MacProject main chart.

task lengths along each "path" of the network. The path of the network with the longest duration determines the length of the project and is called the *critical path*. In this way, the tasks that contribute the most to the length of the project schedule can be

concentrated on, since reducing their length will reduce the overall length of the project. If the tasks on the critical path are reduced enough in length, or if other tasks in the network take longer to complete than planned, another path can become the

critical path. CPM allows project managers to concentrate on tasks that most impact the project schedule.

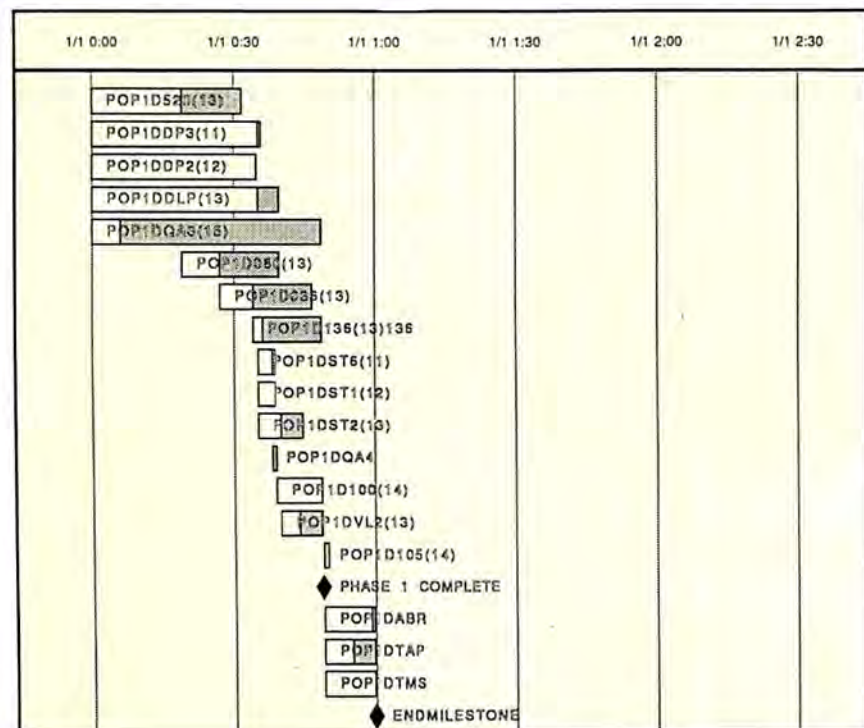
Two software packages are available for the Macintosh to assist in the project management process, *MacProject* from Apple Computer, Inc., and *Micro Planner* from Micro Planning Software USA.

GREAT LOOKS!!!

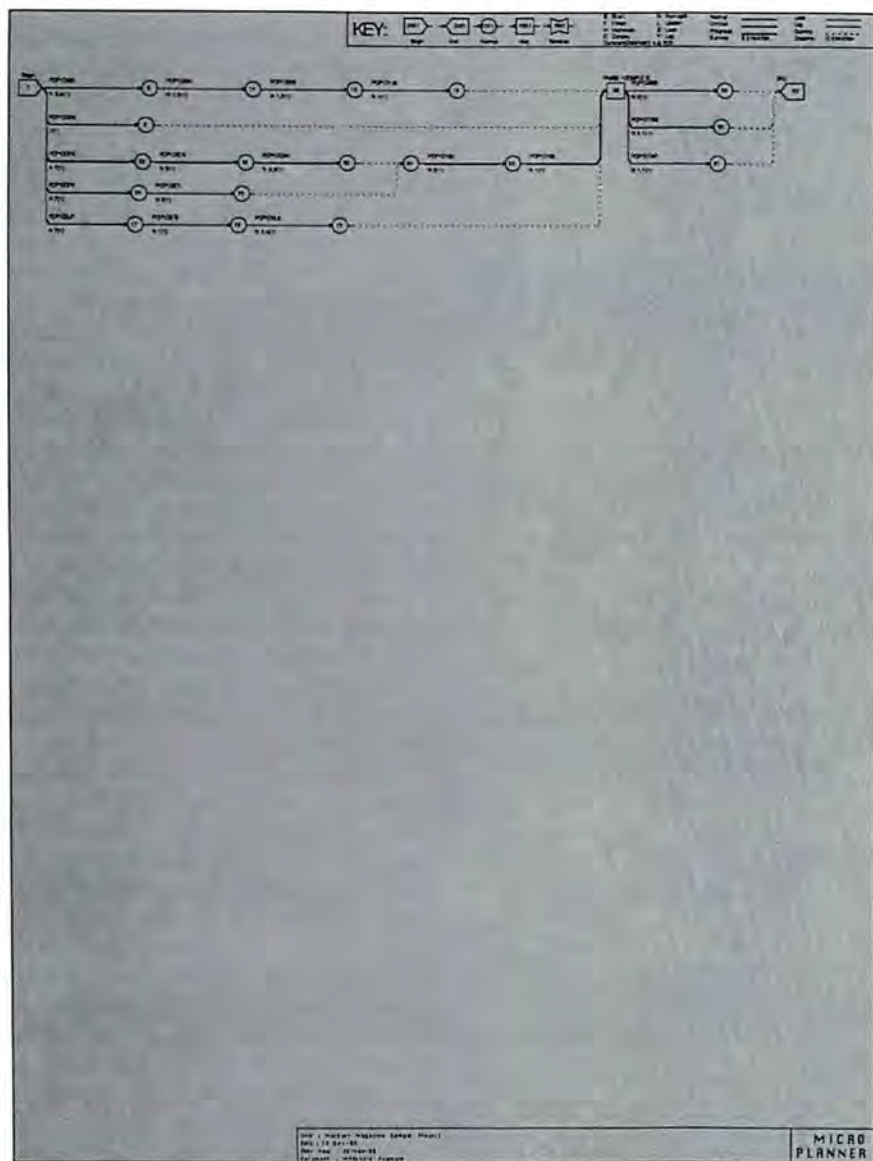
MacProject was developed by SoloSoft for Apple Computer, Inc. What Apple wanted was a business tool that really showed off the Macintosh architecture and graphics capabilities to quiet the critics who were saying that the Mac wasn't a "serious" computer. Apple got exactly what it wanted, and then some. *MacProject* is a peach of a program.

Completely mouse-driven, *MacProject* lets the user lay out a PERT network with a free hand, to end up with a custom schedule chart that can be as simple or as complex as desired. Full cut and paste is supported for moving tasks around (or duplicating them), explanatory text can be entered anywhere on the chart and in any font and size, tasks can be resized or rearranged and task descriptions can be edited easily whenever it's needed.

The rectangular boxes represent



MacProject.



Micro Planner report.

tasks, and the rounded corner boxes represent "milestones," significant events that typically have no duration. And true to the Mac "what you see is what you get" philosophy, all of the charts that can be displayed on screen can be printed exactly as is on an ImageWriter or LaserWriter.

But wait, there's more! Select a task and pull down the "Enter task info" menu, and tasks can be given durations (in minutes, hours, days, weeks or months; the only restriction being that all tasks use the same unit) and have any resources that are required entered. *MacProject* will then use the task durations to calculate the critical path and highlight it

with bold outlines. Resources can also be assigned costs, and the program will calculate the cash flow of the project. *MacProject* allows dates to be set by the user, or will calculate the Earliest Start Date, Earliest Finish Date, Latest Start Date and Latest Finish Date. The user selects exactly which data is to be displayed.

Since *MacProject* supports cut and paste, the Schedule Chart, Resource Timeline, and Task Timeline can be cut or copied and pasted into applications which will accept pictures (*MacWrite*, *MacPaint*, *MacDraw*, some databases, and most applications that play by the Mac rules) and the other charts can be cut or copied

and pasted as text (which include tabs and returns, so that the *MacProject* tables will paste into spreadsheets) into other applications.

For all of its flexibility, ease of use, and gorgeous output, *MacProject* does not, however, perform any of the analysis typically associated with project management, other than the cash flow analysis. It will allow the same resource to be assigned to more than one concurrent task, for example. The real world won't stand for that. If a shortage of a particular resource will severely impact the project schedule, the user has to notice it from the Resource Timeline and take the appropriate actions.

These restrictions mean that *MacProject* can't be used everywhere and for everything. Users also have to remember to check for those things that it doesn't check for. Be particularly careful when implementing large, complex projects.

MORE FUNCTION!!!

Micro Planner, developed by Micro Planning Software Limited of England, is marketed in the United States by Micro Planning Software USA. It's the Macintosh version of a software package that runs on the IBM PC, the Apple II, the Apple III and several other computers. So while it suffers from the "un-Mac-ishness" often encountered in software ported from other machines, it has a proven track record and a richness of functionality that should impress even the most seasoned project manager.

When starting out, *Micro Planner* is considerably more intimidating than *MacProject*. The user interface and use of the mouse are not always intuitive, and the number of options presented can be confusing at first. Tasks, called activities by *Micro Planner*, are entered (along with their durations) and networked together in a manner somewhat similar to *MacProject*, but it's there that the similarity ends. *Micro Planner* determines how the network will be displayed, and this can even change from point to point along the project. In order to print the project activity network, it's necessary to run a separate application program! That

THE BEST LAID PLANS OF MICE AND MEN

MACPROJECT AND MICRO PLANNER: A COMPARISON

Feature	MacProject		MicroPlanner	
	128K	512K	128K	512K
Number of tasks/activities per project	200	2000	300	500
Number of resources per project	50	50	26	26
Number of resources per task	6	6	20	20
Number of calendars	1		6	
Calendar length (per project)	10 years		5 years, 219 days	
Date range	1950–1999		1950–2049	
Minimum duration unit	1 minute		1 day	
Maximum duration unit	1 month		1 day	
Number of Zone labels	N/A		26	
Number of Responsibility labels	N/A		26	
Length of Zone/Responsibility labels	N/A		12 characters	
Description length	32K characters		254 characters	
Task (Activity) Cost Entry	yes ¹		no	
Resource Cost Entry	yes ¹		no	
Cash Flow Table	yes ¹		no	
Project Table	yes ¹		yes ²	
Task (Activity) List	no		yes ²	
Critical Task (Activities)	no		yes ²	
Progress Report	no		yes ²	
Short Term Schedule	no		yes ²	
Key Event (Milestone) Report	no		yes ²	
Resource Usage Histogram	no		yes	
Resource Cost Histogram	no		yes	
Total Resource Cost Histogram	no		yes	
Copy-protected	no		yes	
Charts Available				
Schedule	yes ¹		yes	
● User formatted	yes		no	
Resource Timeline	yes ¹		yes ²	
● User selected scale	yes		no	
● Float suppression	no		yes	
● Task suppression	no		yes	
Task (Activity) Timeline	yes ¹		yes ²	
● User selected scale	yes		no	
● Float suppression	no		yes	
● Task suppression	no		yes	

¹All MacProject reports allow font selection.

²Most Micro Planner reports use the ImageWriter built-in fonts only

program, called *Project Utility*, comes on a separate disk, as *Micro Planner* and a System Folder fill up a whole disk by themselves.

Activities can have durations and resource requirements, like in *MacProject*, and *Micro Planner* will generate several reports on screen. But unlike most Macintosh applications, when you print these reports they look entirely different, since *Micro Planner* uses the ImageWriter's built-in fonts and graphics for printing the reports, something most Macintosh owners have probably never seen! Because of these printing restrictions, user font selection is not possible, nor is cutting and pasting the charts between applications.

Some reports (network charts, for example) can be printed on the LaserWriter, but the program treats the LaserWriter as though it was an ImageWriter. The results are quite disappointing.

Micro Planner really shines in its analysis capability. Worried about resource usage? *Micro Planner* will show you a histogram showing when resources are overloaded and when they're available and unused, or it can perform a resource analysis and show what the effect of a given resource mix will be on the project schedule. *Micro Planner* can also do a time-critical resource analysis to find out how many resources you need to finish on time.

When analyzing resources, *Micro Planner* will stop a task in progress to let a task on the critical path have access to the resource. If your tasks must be completed once they start, just indicate to *Micro Planner* that they are "non-split" tasks and it will adjust its analysis accordingly. Perhaps you have a solid deadline. Tell *Micro Planner*, and it will produce a "Supercritical Activities" report of those activities which will prevent you from meeting your deadline. *Micro Planner* has other features to enhance the usefulness of its reports, such as options to narrow by responsibility, by zone, by resource or by activity type, or the number of activities being examined.

Where *Micro Planner* falters is in its implementation. In addition to the lack of LaserWriter support,

most of the aggravation of using *Micro Planner* stems from the fact that in order to allow it to run on a 128K Mac, design decisions were made that make it very slow on any Mac. The primary problem is that *Micro Planner* files are disk-based. This means that all changes made to the document are immediately written to the disk, making for a lot of disk spinning, especially when doing analysis work. This also means that if the user changes his or her mind, there is no way to revert to the saved version (unless a copy was made by the user beforehand). Fortunately, *Micro Planner* documents can be placed on hard disks (and the program is HFS-compatible) for a considerable performance improvement, even though the program itself is copy-protected and must be run from a floppy.

MacUser examined the current release version of *Micro Planner*. Micro Planning Software USA expects to release a new version in the first half of 1986 that will fully support the ImageWriter and LaserWriter for all reports, as well as offering additional enhancements and speed improvements.

GREAT LOOKS??? MORE FUNCTION???

These two packages, *MacProject* and *Micro Planner*, which ostensibly provide similar functions, are as different as night and day. *MacProject* is simple and easy to use; *Micro Planner* is complex and nonintuitive at times. *MacProject* provides the barest level of analysis; *Micro Planner* can analyze project data every conceivable way. *MacProject* produces high-quality, attractive charts on the ImageWriter or the LaserWriter; *Micro Planner* produces utilitarian and plain reports, many of which will only print on the ImageWriter.

So which one is the best, *MacProject* or *Micro Planner*? It really depends on the project, and on the needs of the user. For small-scale projects, learning PERT/CPM techniques, or occasions when the quality of the output is critical, then *MacProject* would probably be the better choice. For large-scale projects, advanced project managers, or occasions when project analysis out-

	Task Name	Minutes	Earliest Start	Earliest Finish	Latest Start
1	POP1D520 (13)	19	1/1/85 0:00	1/1/85 0:19	1/1/85 0:13
2	POP1DDP3 (11)	35	1/1/85 0:00	1/1/85 0:35	1/1/85 0:01
3	POP1DDP2 (12)	35	1/1/85 0:00	1/1/85 0:35	1/1/85 0:00
4	POP1DDL2 (13)	35	1/1/85 0:00	1/1/85 0:35	1/1/85 0:05
5	POP1DST6 (11)	3	1/1/85 0:35	1/1/85 0:38	1/1/85 0:36
6	POP1D080 (13)	8	1/1/85 0:19	1/1/85 0:27	1/1/85 0:32
7	POP1DST1 (12)	4	1/1/85 0:35	1/1/85 0:39	1/1/85 0:35
8	POP1DST2 (13)	5	1/1/85 0:35	1/1/85 0:40	1/1/85 0:40
9	POP1DQA3 (15)	6	1/1/85 0:00	1/1/85 0:06	1/1/85 0:43
10	POP1D036 (13)	7	1/1/85 0:27	1/1/85 0:34	1/1/85 0:40
11	POP1DVL2 (13)	4	1/1/85 0:40	1/1/85 0:44	1/1/85 0:45
12	POP1DQA4	0	1/1/85 0:38	1/1/85 0:38	1/1/85 0:39
13	POP1D136 (13) 136	2	1/1/85 0:34	1/1/85 0:36	1/1/85 0:47
14	POP1D100 (14)	10	1/1/85 0:39	1/1/85 0:49	1/1/85 0:39
15	POP1D105 (14)	0	1/1/85 0:49	1/1/85 0:49	1/1/85 0:49
16	PHASE 1 COMPLETE	0	1/1/85 0:49	1/1/85 0:49	1/1/85 0:49
17	POP1DABR	10	1/1/85 0:49	1/1/85 0:59	1/1/85 0:50
18	POP1DTAP	6	1/1/85 0:49	1/1/85 0:55	1/1/85 0:54
19	POP1DTMS	11	1/1/85 0:49	1/1/85 1:00	1/1/85 0:49
20	END MILESTONE	0	1/1/85 1:00	1/1/85 1:00	1/1/85 1:00

MacProject.

weighs the need for attractive output, then *Micro Planner* becomes the superior alternative. In some cases, a combination of the two might work—*Micro Planner* for the detailed activity analysis, and *MacProject* for printing summary reports.

Project management is more than

just a frill. It's an absolute necessity in many business applications, and can add a lot to any project that you have responsibility for. Both programs will soon give you much more control of your projects, and either one will get you right on to the critical path. ☐

REPORT CARDS

MICRO PLANNER

Overall Rating: ●●●

Follows Mac Interface: ●
 Printed Documentation: ●●●
 On-Screen Help: None
 Performance: ●●
 Support: ●●●●
 Consumer Value: ●●●●

Comments: Powerful, full-functioned project manager.

Best Feature: Range of analytic powers and options.

Worst Feature: Printed reports are unattractive.

List Price: \$395.

Published by Micro Planning Software USA, 235 Montgomery St., Suite 840, San Francisco, CA 94104. (415) 788-3324.

MACPROJECT

Overall Rating: ●●●

Follows Mac Interface: ●●●●●
 Printed Documentation: ●●●●
 On-Screen Help: None
 Performance: ●●●
 Support: ●
 Consumer Value: ●●●

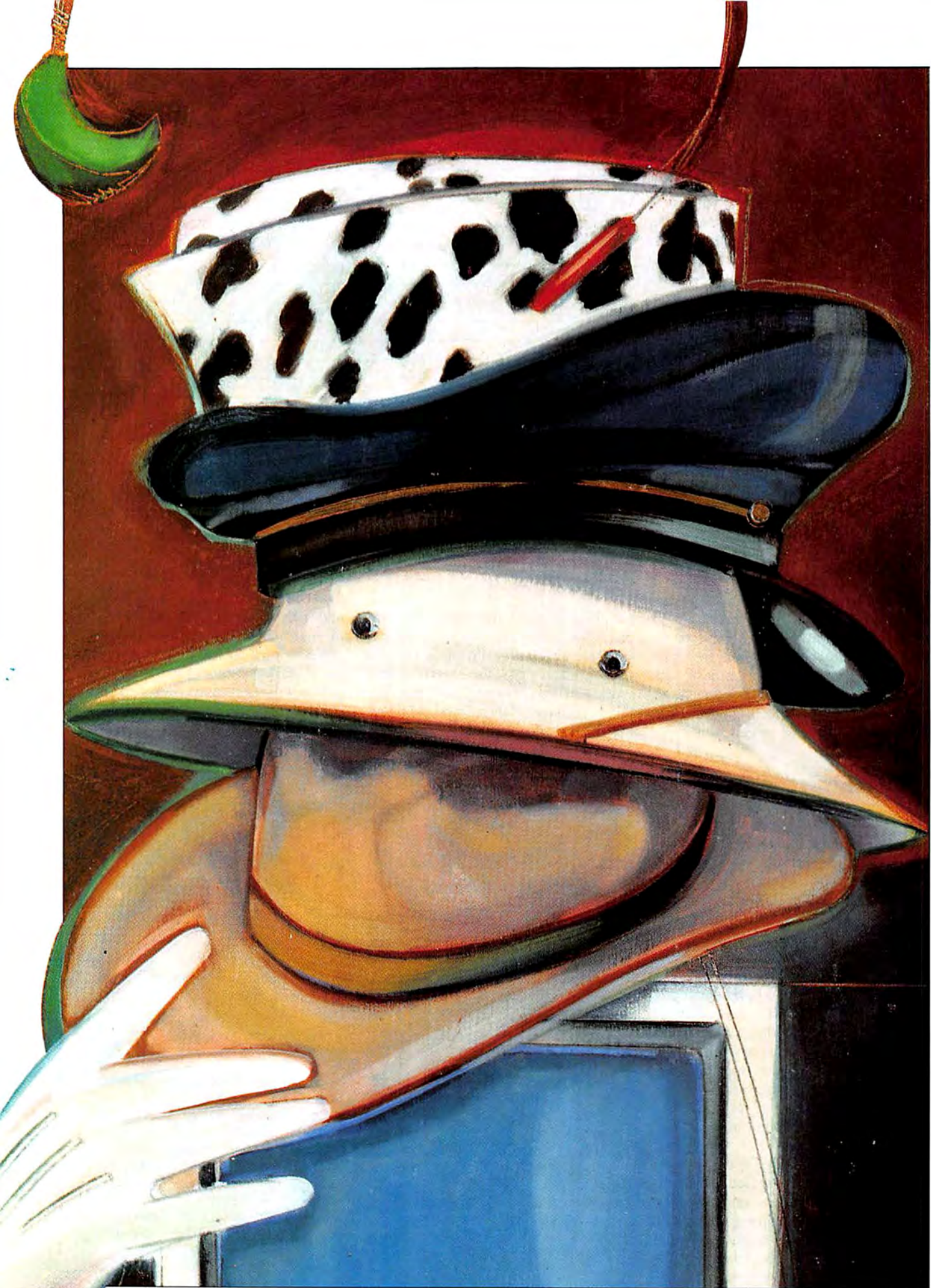
Comments: Easy to use project manager.

Best Feature: Superb printed reports.

Worst Feature: Limited range of analysis and failure to check resources for duplicate usage.

List Price: \$125.

Published by Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010.



MULTIPLAN, YOU LOOK MAHVELOUS!

Try a few new

hats on an old

warhorse.

FOR THE FIRST YEAR AND A HALF of its existence the Mac was a one-spreadsheet machine. Until the summer of 1985, number crunching on the Mac meant *Multiplan*. Then, in one fell swoop, along came *Jazz*, *Crunch*, and *Excel*—three power spreadsheets. In comparison with the big guys, *Multiplan* began to look a bit anemic.

Does this new breed of Mac spreadsheet make *Multiplan* extinct? Far from it. *Multiplan* is still sufficient for many personal and small business applications that use columns and rows of numbers and require the flexibility of formulas. But, *Multiplan* is such a versatile program that it can also handle many tasks not generally associated with spreadsheets and, therefore, previously unexplored by many users.

Seeing the possibility for variation in the use of *Multiplan* requires an expanded concept of the nature of spreadsheets. Although businesses

have embraced spreadsheets as a means of performing mathematical operations on sets of numbers, a spreadsheet can be viewed broadly as a flexible structure within which many different types of information can be organized effectively.

A simple and generic example of the innovative use of a spreadsheet is the creation of multiple columns of text. These can be inserted into documents as tables or kept in the spreadsheet as a record keeping system. Why use *Multiplan* instead of *MacWrite* or *Word* for such tables? Because *Multiplan* does the job better. With *Multiplan* it would be very easy for the library of a small professional society, for example, to create a list of books, their authors, and the names of the people who have borrowed them (Figure 1).

This setup has several advantages over a similar one created by setting columns with tabs in a word processor. First, the information in any column or row can be deleted without affecting the position of entries in the following columns and rows.

Second, it's easier to change the width of a *Multiplan* spreadsheet column than it is to alter a column within a word processor. If 15 spaces were originally allotted for the "Authors" column, adding the name Rudolph M. Lowenstein would wreak havoc on columns in *MacWrite*. With *Multiplan* the same operation would require nothing more than expanding the Authors column by clicking on the line at the right of the column head, dragging it to the right and releasing the mouse button, or selecting COLUMN WIDTHS from the Format menu and setting a number of spaces.

A third advantage of spreadsheets over word processors is that there are times when it's useful to add a column of text to an arrangement of existing columns. This is tedious, if not impossible, with a word processor, but easy with *Multiplan*. The publication date of each book can be added between the Authors and Borrowers columns, so that members can tell at a glance how up to date a particular reference is. A new column is added by holding down the

By
Charles
Spezzano

MULTIPLAN, YOU LOOK MAHVELOUS!

SHIFT key and clicking in the head of the column to the right of the new column's intended position. The existing column shifts to the right and a new, blank column takes its place.

Finally, *Multiplan* can sort rows on the worksheet. This allows new books to be added in the order they are acquired, then the list can be alphabetized by title or author. To sort a series of rows, simply select all the filled-in cells in the Titles column and then choose the SORT command. In the dialog box, click SORT ROWS IN ASCENDING ORDER. By contrast, sorting a similar set of four-column rows would have to be done manually with *MacWrite*.

The library catalog used in this example can stand on its own as a *Multiplan* document. In many cases, however, similar lists are created specifically for inclusion in a written report. Using *Multiplan* to create tables of text and then copying them into a word processed document might seem like extra work. Over the long run, however, the savings in time and effort can be substantial.

The copying process involves nothing more than selecting all the cells in the spreadsheet and copying them to the Clipboard. Then they can be pasted into *Word* or *MacWrite* at any point in the document. The columns from the spreadsheet will be pasted sequentially to the positions of the tabs in the document, so it's important to set tabs accordingly before pasting.

It's a good idea to keep a copy of the spreadsheet, even after it has been copied to a text document. Then, even extensive changes can be made easily and re-pasted to the document after deleting the first table from it.

In some instances it may even make sense to write the document itself in *Multiplan*, instead of a word processor. Take the memo in Figure 2, for example. This memo is short on text and is intended to present a set of numbers and their total. The format is easier to design within *Multiplan* than it would be in *Word* or *MacWrite*. The text simply spills over from one column to another. The numbers can be formatted as dollar values, then added together by

typing an equal sign in the cell intended to contain the total and pointing to each cell, in turn, that will contribute to the total. *Multiplan* adds the plus signs and develops the formula automatically as each cell is highlighted.

In addition to simple catalogs, tables and memos, *Multiplan* can also work as an effective mailing list. Although a database manager or mailing list program may be necessary for managing a list of hundreds of names and addresses, many personal, professional and civic organization or club lists may contain no more than 50 names. These are too

few to warrant the purchase and mastery of a separate program, but enough to make frequent addressing of envelopes tedious.

Multiplan can be used to store the names and addresses in a single column or in multiple columns for printing on sheets of three or four across peelable, self-adhesive labels. The names and addresses must be laid out on the spreadsheet so that they are vertically and horizontally centered when printed.

Figure 3 shows a set of names and addresses on a *Multiplan* worksheet. They have been set up for printing on three-across labels. Each label is

Fig. 1: Keeping control of your library is simple.

	1	2	3
	Books	Author	Borrowed by
1			
2			
3	Psychoanalytic	Glover, Edward	Paula Brown
4	technique		
5			
6	Psychic Conflict	Jackson, Charles	Phil Mantino
7			
8	The Obsessive Person	Salter, Leon	Sally Rogers
9			
10			
11			
12			
13			
14			
15			

Fig. 2: Memos, especially those that use numbers, are easy. This expense report would have been much harder in a word processor. You can "clean up" the *Multiplan* output as shown or transfer to a word processor for further formatting.

	1	2	3	4	5	6
2						
3	FROM	Fred Jones				
4	TO	Harry Bland				
5						
6	Harry, please reimburse me for the following expenses:					
7						
8		12/1/85	Fly to Boston and back		\$165.00	
9		12/2/85	Take Mr. Sims to lunch		\$225.00	
10		12/2/85	Take Mr. Sims to Dinner		\$325.00	
11		12/3/85	Brkfst / room service		\$85.00	
12					\$800.00	
13						
14	I hope we don't have to quibble about pennies like we did last time.					
15						
16						

FROM Fred Jones
TO Harry Bland

Harry, please reimburse me for the following expenses:

12/1/85	Fly to Boston and back	\$165.00
12/2/85	Take Mr. Sims to lunch	\$225.00
12/2/85	Take Mr. Sims to Dinner	\$325.00
12/3/85	Brkfst / room service	\$85.00
		\$800.00

I hope we don't have to quibble about pennies like we did last time.

2½ inches wide and measures 1 inch from top to bottom. This provides space for six lines of 25 characters in New York 12 type. It looks awkward to fill the labels completely with text from right edge to left edge, so the columns with names and addresses set to a width of 20 spaces.

To keep the first column of names and addresses from printing at the left edge of the labels, the left margin can be set to 0.3 inches in the Page Setup... dialog box. Since the labels are 2.5 inches wide and the names and addresses are limited to 20 spaces (or 2 inches), this leaves a right margin of at least 0.2 inches on every label.

That's assuming, of course, that something has been done to keep the second column of names and addresses from printing right on the heels of the first. To avoid having the initial few characters from the second column of names and addresses print on the right edge of the first column of labels, insert a blank column into the worksheet between two name and address columns.

The blank column must be wide enough to account for the two blank spaces at the end of the first column of labels, the single space between labels on the sheet, and the three blank spaces at the beginning of the second column. So the width for column B has been set to 6 spaces. Column D has similarly been set to a width of 6 spaces to separate the second and third columns of labels during printing.

The horizontal spacing for the entire spreadsheet model, then, is:

Left Margin = 3 spaces
(0.3 inches)

Fig. 3: Short mailing lists are easy to maintain. You can print labels directly from your document.

	1	2	3	4
1	Fred Brown		John Flood	Jane Doe
2	Marketing Director		122 Slough Street	10 East St
3	195 Down Street		Denver, CO 80218	Denver, CO
4	Denver, CO 80239			
5				
6				
7				
8	Dale Mumford		Joe Duggins	
9	111 West Avenue		258 Elm Street	
10	Denver, CO 80222		Denver, CO 80219	
11				
12				
13				
14				
15				

Column A = 20 spaces
B = 6 spaces
C = 20 spaces
D = 6 spaces
E = 20 spaces

The vertical spacing is always tricky when printing labels. It can be disrupted by incorrect settings for the top or bottom margins, by leaving too much or too little space between the last line of text for one label and the first line of text for the label below it, or by futile attempts to cope with people who add a second line or even a third line of address to the usual name/ address/ city-state-zip format. These additional lines may be necessary to identify the company they work for or the number of their office in a large building, or it may simply announce their title. In any case, they can complicate any label maker.

To avoid these pitfalls, several procedures can be followed in constructing this spreadsheet model. First, set the top and bottom margins to zero. This eliminates the

worry about page breaks disrupting the flow of printing. Second, align the top of the first row of labels with the print head and begin entering data on line 2 of the worksheet. Names and addresses with three or four lines of text will be centered correctly from top to bottom. Third, if a name and address consists of three lines of text, skip two rows to reach the end of the label and two more rows to reach the point where printing should begin on the label below it. If, instead, a name and address consists of four lines of text, skipping a total of three rather than four rows before entering the next name and address in that column will keep things straight.

Since a *Multiplan* worksheet can have 255 rows, this arrangement could hold enough names and addresses to fill a hundred labels. Maintaining a larger customer or membership list with *Multiplan* would be possible (by storing names from A to L on one worksheet and those from M to Z on another, for example), but a bit unwieldy. As there's no way to alphabetically sort the kind of list in this model, finding one name among a hundred can be frustrating.

The examples described so far just scratch the surface of the many possible applications of *Multiplan* to personal, professional, and small business tasks. Learning to think of it as an information organizer, rather than simply a number cruncher, will help in adapting it to a wide variety of applications previously considered to be the exclusive work of word processors or database managers.

MULTIPLAN: REPORT CARD

Overall Rating: ●●●●

Follows Mac Interface:	●●●●●	functions.
Printed Documentation:	●●●●	Best Features: Ease of use, and the ability to link worksheets.
On-Screen Help:	●●●	Worst Features: Comparatively small size (63 x 255), and lack of full database structures.
Performance:	●●●●	List Price: \$199.95.
Support:	●●●	Published by Microsoft, 10700 Northup Way, Bellevue, WA 98004.
Consumer Value:	●●●●	(206) 828-8080.

Comments: Capable, basic spreadsheet with simple sorting, text handling and many built-in

We support the Mac,

✓denotes Mac XL compatibility.*

SOFTWARE

Addison-Wesley

Smart Eyes (speed reading tutor)\$36.

Altsys

✓Fontastic (create your own fonts) 27.

Ann Arbor Softworks

Animation Toolkit 1 31.

Apropos

Financial Planning (reqs. Multiplan) 51.

Investment Planning (reqs. Multiplan) 51.

Arrays/Continental

Home Accountant (reqs. external drive) 52.

Assimilation

✓MacTracks 22.

✓MacMemory-Disk (reqs. 512k) 22.

✓Business-Essentials 65.

✓MacSpell-Right 69.

✓Right-Word 69.

ATI

Teach Yourself Multiplan 29.

MacCoach Training 39.

Jazz Training 39.

Excel Training 39.

Batteries Included

✓The Mac BatteryPak 27.

Blyth Software

✓Omni 3 (requires 512k, external drive) 245.

Borland International

✓Sidekick (unprotected) 44.

BrainPower

✓PowerMath (requires 512k) 52.

✓StatView (statistics package) 99.

CAMDE

✓NutrCalc (diet & nutrition analysis) 49.

Casady Company

✓Fluent Fonts (two-disk set) 29.

Central Point Software

Copy II Mac (includes MacTools) 20.

Chang Labs

✓Rags to Riches Receivables (reqs. 512k) 105.

✓Rags to Riches Ledger 105.

✓Rags to Riches Payables 105.

✓Rags to Riches Three Pak 249.

Creighton Development

✓MacSpell+ (requires 512k) 55.

DataFood

✓DrawForms (requires MacDraw) 30.

✓MacForms (requires MacPaint) 42.

Desktop Software

✓1st Port (communications software) 48.

✓1st Merge 48.

✓1st Base 95.

Digital, Etc.

✓Maccountant 139.

Dillithium Press

PC to Mac & Back (link your PC) 79.

Dow Jones

Straight Talk 45.

Spreadsheet Link 56.

Market Manager PLUS 109.

Dreams of the Phoenix

✓Day Keeper Calendar 27.

✓Mouse Exchange BBS 27.

✓Mouse Exchange Terminal 27.

✓Quick & Dirty Utilities Vol. 1 27.

✓Twelve-C Financial Desk Accessory 27.

Electronic Arts

Pinball Construction Set \$27.

Financial Cookbook 32.

Deluxe Music Construction Set 32.

EnterSet

✓Quickpaint (find MacPaint files fast) 29.

✓Quickset (icon-driven accessory) 29.

✓Quickword (word processing tool) 32.

1st Byte

Speller Bee (spelling-learning tool) 42.

KidTalk ("talking notebook") 42.

Smoothtalker (version 2.0) 57.

Forethought

✓Typing Intrigue 29.

✓Factfinder (free-form entry) 84.

✓FileMaker (custom design reports) 108.

Fortnum/Southern

✓MacInooga Choo-Choo (reqs. 512k) 21.

MacChemistry 89.

Great Wave Software

The Art of Fugue (Bach) 12.

Instrumental Favorites 12.

✓Comet Halley 18.

ConcertWare+ 39.

Harvard Associates

✓MacManager (business simulation) 29.

✓Desktoppers (new desk accessories) 29.

Hayden Software

✓DaVinci Buildings 29.

✓DaVinci Interiors 29.

✓DaVinci Landscapes 29.

✓DaVinci Building Blocks 46.

✓DaVinci Commercial Interiors 114.

✓Art Grabber with Body Shop 29.

Turbo Turtle 35.

I Know It's Here Somewhere 35.

MusicWorks 45.

Hayden:Speller 45.

Score Improvement System for the SAT 57.

VideoWorks 57.

Ensemble 155.

Hippopotamus Software

Hippo Computer Almanac 21.

✓Hippo-Lock (file security program) 68.

Hippo-C - Level 1 79.

Hippo-C - Level 2 219.

Human Edge Software

✓Mind Prober 26.

Ideaform

✓MacLabeler (print disk labels) 29.

Innovative Data Design

✓Paste-Ease (requires MacPaint) 35.

✓MacDraft (requires 512k) 139.

Kensington

✓Graphic Accents 29.

✓Type Fonts for Text 29.

✓Type Fonts for Headlines (reqs. 512k) 42.

Layered

✓Front Desk (scheduling/organizer) 77.

Linguist's Software

✓MacCyrillic 39.

✓SuperFrench/German/Spanish 39.

✓Tech (1000 different symbols) 59.

✓MacArabic 59.

✓MacKana/Basic Kanji 59.

✓MacKorean 59.

✓SuperGreek 59.

✓SuperHebrew 59.

✓SuperGreek/Hebrew/Phonetics 89.

Legissoft/Nolo Press

✓WillWriter 27.

Living Videotext

ThinkTank 128k \$75.

✓ThinkTank 512k 125.

Magnum

✓McPic - Volume I 28.

✓McPic - Volume II 28.

✓The Slide Show Magician 34.

Manhattan Graphics

✓Ready Set Go 2.0 (requires 512k) 65.

Mark of the Unicorn

Professional Composer (reqs. 512k) ... 249.

Microsoft

Entrepreneur 29.

Learning Multiplan and Chart 37.

Chart 72.

Logo 75.

Basic (version 2.1) 87.

Multiplan 107.

File 111.

Word 111.

Fortran 179.

Excel 225.

Miles Computing

✓Mac the Knife - Volume I 21.

✓Mac the Knife - Volume II 25.

✓Mac the Knife - Volume III 27.

Mindscape

✓The Perfect Score: SAT 47.

Monogram

✓Forecast 40.

✓Dollars & Sense 81.

Nevins Microsystems

Turbocharger (requires 512k) 55.

New Canaan MicroCode

✓Mac Disk Catalog 25.

Odesta

✓Helix (requires 512k, external drive) .. 219.

Organizational Development

✓Consultant (idea management) 119.

Paladin

✓Crunch (requires 512k) 165.

Palantir

✓MacType (supports Dvorak keyboard) .. 26.

✓MathFlash (math flash card drills) 26.

✓WordPlay 26.

Accounts Receivable (requires Basic) .. 69.

General Ledger (requires Basic) 69.

Inventory Control (requires Basic) 69.

inTouch (communication to emulation) .. 79.

PBI Software

✓Icon Switcher 14.

✓Icon Fun & Games Library 14.

✓Icon Business Library 14.

Peachtree

✓Back to Basics General Ledger 88.

✓Accounts Payable 88.

✓Accounts Receivable 88.

Protek-It Software

ProCopy/ProEdit 29.

ProVUE Development

✓OverVUE (version 2.0) 149.

QED Information Sciences

✓Typing Made Easy 36.

Rubicon Publishing

✓Dinner At Eight (recipes to wines) 35.

Satori

✓BulkMailer (mailing list mgr.) 79.

Scarborough Systems

MasterType (typing tutorial) 25.

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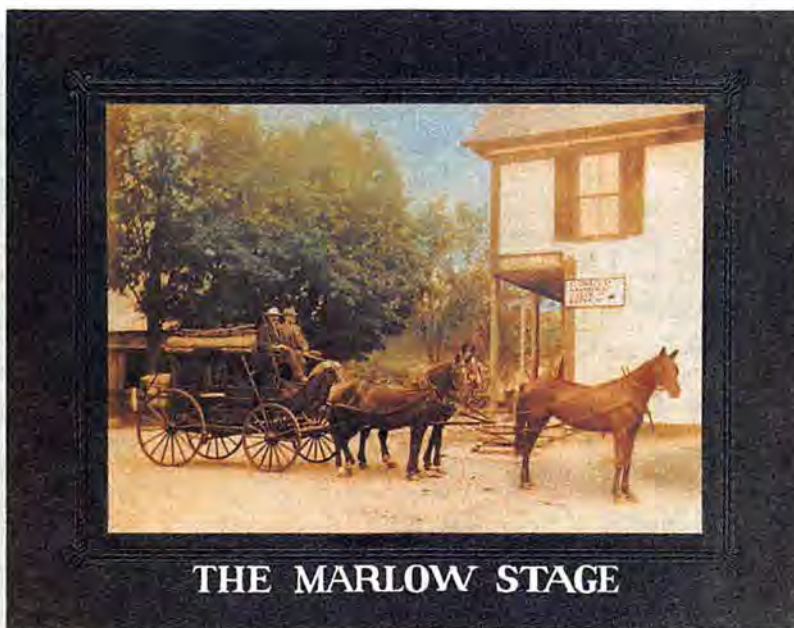
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Typing Tutor III	31.	
SMB Development		
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Epstart	27.	
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Art a la Mac Vol. 1-People and Places	23.	
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Click Art Publications	29.	
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Click Art Worksheet	46.	
Tel. Software		
Filevision (graphic filing program)	99.	
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Grid Wars	28.	
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Sherlock Holmes: Another Bow	27.	
Blue Chip		
Millionaire (stock market)	\$30.	
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MacCommand	21.	
Electronic Arts		
One on One/Dr J vs Larry Bird (reqs. 512k)	27.	
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Rogue (great graphics)	24.	
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Winter Games	24.	
Gamestar		
Championship Star League Baseball	22.	
Hayden Software		
Masterpieces	24.	
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Sargon III (9 levels of chess)	29.	
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Seastalker (junior)	24.	
Cutthroats (standard)	24.	
Enchanter (standard)	24.	
Hitchhiker's Guide (standard)	24.	
Planetfall (standard)	24.	
Wishbringer (standard)	24.	
The Witness (standard)	24.	
Zork I (standard)	24.	
Zork II (advanced)	27.	
Zork III (advanced)	27.	
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Infidel (advanced)	27.	
Sorcerer (advanced)	27.	
Suspect (advanced)	27.	
Deadline (expert)	29.	
Spellbreaker (expert)	29.	
Starcross (expert)	29.	
Suspended (expert)	29.	
Invisiclues (hint booklets)	6.	
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Gypsy (the Computer Oracle)	23.	
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Miles Computing		
Fusillade	\$21.	
MacAttack (3-D tank simulation)	27.	
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Balance of Power	30.	
Déjà Vu (murder mystery)	33.	
Origin Systems		
Exodus: Ultima III (fantasy adventure)	38.	
PBI Software		
Feathers & Space	21.	
Strategic Conquest	29.	
Fokker TriPlane Flight Simulator	35.	
Penguin		
Transylvania	24.	
Crimson Crown (sequel to above)	24.	
The Quest	24.	
Xyphus	24.	
Priority Software		
Forbidden Quest	24.	
Gateway (sci-fi fantasy adventure)	25.	
Psion		
Psion Chess (3D and multi-lingual)	31.	
Scarborough Systems		
Run for the Money	29.	
Make Millions	29.	
Sierra On-Line		
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Ultima II (role-playing adventure)	35.	
Silicon Beach Software		
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Amazon	27.	
Dragon World	27.	
Fahrenheit 451	27.	
The Other Valley Software		
Monkey Business (arcade action)	21.	
Delta Patrol (arcade action)	21.	
Unicorn		
Futura (sci-fi adventure)	24.	
Utopia (science fantasy game)	24.	
Animal Kingdom (ages 6-12)	27.	
Science and language arts program		
Mac Robots (pre-school program)	27.	
Vindex		
MacCheckers/Reversi	28.	
MacGammon/Cribbage	28.	
MacVegas	34.	

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ing but the Mac.

HARDWARE

Assimilation	
Mac-Port-Adaptor	\$69.
Mac-Epson-Connection	75.
Mac-Daisywheel-Connection	79.
Mac-Turbo-Touch	79.
Numeric-Turbo	129.
Compucable	
Mac to Hayes Smartmodem cable	16.
Mac to Apple modem cable	16.
Mac to Hayes Transet 1000 cable	16.
Cuesta Systems	
Datasaver AC Power Backup (90 watts)	call
Curtis Manufacturing	
Diamond (6 outlets)	28.
Emerald (6 outlets; 6 ft cord)	34.
Sapphire (3 outlets; EMI/RFI filtered)	44.
Ruby (6 outlets; EMI/RFI filtered; 6 ft cord)	50.
Epson	
AP-80 (Imagewriter compatible)	call
FX-85	call
FX-185	call
LQ-1500 (letter quality dot matrix)	call
Ergotron	
MacTilt (incl. external drive bracket)	75.
Hayes	
Smartcom II (communications software)	86.
Smartmodem 300	call
Smartmodem 1200	call
Smartmodem 2400	call
Transet 1000	call
IOmega	
Bernoulli Box (dual 10-megabyte storage)	2589.
10-Meg Cartridge	call
Head Cleaning Kit	call
Kensington	
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Mouseway	8.
Mouse Pocket	8.
Mac Dust Cover	9.
Mac XL Dust Cover	9.
Imagewriter Dust Cover	9.
Wide Imagewriter Dust cover	9.
Mouse Cleaning Kit w/Mouse Pocket	16.
Universal Printer Stand	17.
Disk Case (holds 36 Mac disks)	19.
Disk Drive Cleaning Kit	19.
Tilt/Swivel	22.
Polarizing Filter	31.
Surge Suppressor	32.
Starter Pack (includes Tilt/Swivel)	53.
A-B Box	60.
Control Center	61.
Koala Technologies	
KAT Graphics Tablet	139.
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Kraft	
QuickStick	45.
Microsoft	
MacEnhancer	159.
Mitsuba	
Super 5 External Drive	225.
Mouse Systems	
A+ Optical Mouse	59.
N² Products	
Mac to Modem cable (6 feet)	19.
Mac to Printer cable (6 feet)	19.
Mac to Transet 1000 cable (9 ft.)	19.

Paradise Systems

Mac 10 (10 megabyte hard disk)	\$769.
Mac 20 (20 megabyte hard disk)	1029.
PBI Software	
Switch Box	36.
PKI	
Sydwyndr	245.
Systems Control	
MacGard (surge protection)	55.
Thunderware	
Thunderscan (graphics digitizer)	175.
Video 7	
MouseStick	39.

DISKS

BASF 3 1/2" Disks (box of 5)	12.
Sony 3 1/2" Disks (box of 10)	22.
Fuji 3 1/2" Disks (box of 10)	22.
MAXELL 3 1/2" Disks (box of 10)	22.
Memorex 3 1/2" Disks (box of 10)	24.
Verbatim 3 1/2" Disks (box of 10)	24.
3M 3 1/2" Disks (box of 10)	24.

INFORMATION SERVICES

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Compuserve Information Service	19.
Source Telecomputing	
The Source (subscription & manual)	30.

MISCELLANEOUS

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Automation Facilities	
Floppyclene Drive Care Kit	20.
Floppyclene Drive Care Refill	10.
MacPak Complete Care System	29.
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Clean Image Ribbon Co.	
Clean Image Ribbon Kit	12.
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Teakwood Roll-top Case (holds 90 disks)	21.
Magnum	
Mouse Mover	14.
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Microsoft Multiplan: Of Mice and Menus	13.
Midnight Madness	14.
The Printed Word	14.
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Macinations (intro to Basic)	16.
Excel in Business	18.
Moustrak	
Moustrak Pad (standard 7"x9")	8.
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Imagewriter Pad	12.
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Imagewriter Color Ribbons	5.
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THE SEEDS OF APPLE TALK

"NETWORKING," THE BUZZWORD of the Yuppie generation, used to describe getting a job through friends.

For Mac owners, right now "networking" means getting the most value out of the LaserWriter by hooking up to AppleTalk. AppleTalk is a local area network (LAN) that can tie up to 32 Macs or peripherals together on a cable up to 1000 feet in length to share resources like the LaserWriter, file and print servers, and other hardware.

Few offices need to push the network to its limits, which is just as well, because while technically capable of serving up to 32 nodes (computers or peripherals), all AppleTalk can realistically handle is between 8 and 10 nodes. More will overload the system and slow it down to unacceptable levels.

Although it needs a Mac to function, AppleTalk can support connections between the Mac, IBM PC, Apple II series and other computers on a single network, making it easy to transmit data back and forth (with

Easy to follow

instructions for

planting and

cultivating your own

local area network.

the proper interface cards, of course). All computers connected on the LAN can share printers and disk drives, if the right software is used.

While connecting a PC to AppleTalk doesn't mean the PC will be able to read a *MacPaint* file, it does mean information can be ported back and forth between programs that support such data transfers, such as *Excel*.

HOW IT WORKS

An AppleTalk network consists of AppleTalk connectors, AppleTalk cables and cable extenders, each at-

tached to a computer or peripheral via the plug at the end of each AppleTalk connector.

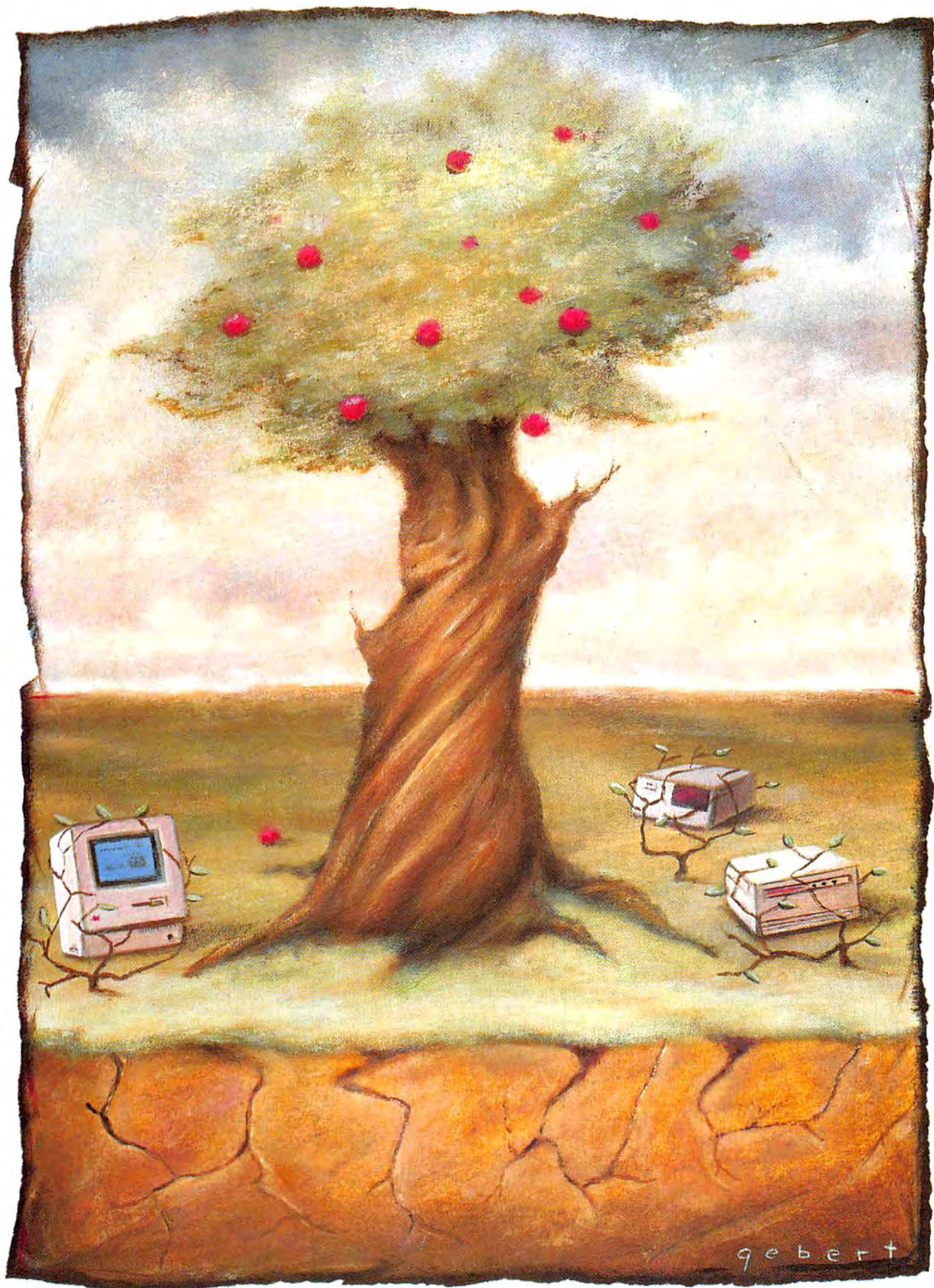
Each node (computer or peripheral) assigns itself a network ID number when it's switched on. This number is how the node identifies itself and other nodes in the network, and networked machines constantly "listen" in on the network for information that is addressed to their individual ID numbers.

When a device wants to send information to another node in the LAN, it addresses its information according to the other machine's ID number. Data is sent out through the printer port, where it is fed into the connection box, which functions as a silent "broadcast" system.

When a node such as the LaserWriter hears its own number called, it responds to the first message in line, then the second, and so on until it's received all its "mail."

The reason that users have to wait in line to print on the LaserWriter is that information on AppleTalk is transmitted "baseband." Baseband

by Tracie Forman Hines



THE SEEDS OF APPTALK

networks carry one channel of information at a time. If the network is busy, nodes trying to transmit must wait for the channel to clear before sending information. Messages are separated by time, with peak speed ranging from 50 kilobits to 20 megabits per second.

AppleTalk is organized as a bus network. This means that each Mac (node) is connected with a single cable. Each connection is a passive circuit, so that node failure (like a single broken Mac on the network) won't disrupt the rest of the network. With a bus network, adding nodes is easy—simply tap into the cable and plug in the node.

PARTS IS PARTS

The first thing you'll need to hook up to AppleTalk is a kit available from any Apple dealer. For \$50, you get a 2-meter cable, a connector to attach to the Mac or the LaserWriter, and a cable extender, which joins two cables together to form a longer cord. A kit specifically made for the Mac XL offers the same basic equipment, except that the connector fits the XL. Of course, the \$50 XL kit is about as hard to find nowadays as an XL.

Another \$50 buys an extension cable kit which contains a 10-meter cable and a cord joiner. This kit is for people who have to connect farther than two meters.

The AppleTalk Custom Wiring Kit is pricey—list price is around \$650—although it contains enough equipment to get almost any AppleTalk network up and running. This kit contains 100 meters of cable, 16 unassembled plugs and four cable extensions. The cable is Teflon-coated to meet building codes. Users with a little technical expertise can use it to create custom-length cables to accommodate their individual needs.

MAKING THE CONNECTION

Although the ImageWriter will work even if plugged into the modem port on the back of the Mac, the AppleTalk network must be plugged in through the printer port for the LaserWriter to work properly.

To install your new network, first make sure the power supply to all

computers, peripherals and printers is disconnected. Before hooking up, make sure you know the physical placement of each computer or peripheral, and be sure you'll have enough cable.

Think of AppleTalk as a chain of people, all holding hands. Information is sent down the line by coming in through the right hand and going out through the left (or vice versa). That's why the AppleTalk adaptor has two input/output ports. But, unlike a group of people, the network requires two end points (two people on the ends with one hand free each) in order to function.

Most people use the LaserWriter as one end point on the network, with the machine farthest down the line serving as the other end. It doesn't matter which two nodes are the ends, though, as long as they're there somewhere.

Once you've established how much cable will be needed, and whether you'll have to lay any wiring through walls (this requires special cable—see "Parts Is Parts"), it's time to connect the AppleTalk adaptor. The adaptor's pins fit neatly into the printer port slot on the back of the Mac (if you plan to continue using an ImageWriter, it should be hooked up through the modem port). Attach the LaserWriter's adaptor to the port on its side.

Now just plug the cables into the

AppleTalk adaptor, using a joiner to attach extension cables. See the chart for detailed dos and don'ts.

THE "OLD MAC" NETWORK

Once everything is all hooked up, you still won't be able to print through the LaserWriter until your disks have been properly Laserized. The disk called "LaserWriter Installer" comes with the LaserWriter package and consists of two programs: the *Printer Installer*, and the *LaserWriter Namer*. The installer puts two special (and necessary) programs on each disk: *Laser Prep* and the *LaserWriter* file. Both of these must be present in a disk's System folder (or anywhere else on that disk) in order for the network to function. The Choose Printer desk accessory, which makes it possible to select the LaserWriter as the printer of choice, is also automatically installed when you Laserize a disk.

All system disks that will be used to print with the LaserWriter must be Laserized. It's not a hard process.

First, put the LaserWriter Installation disk in the drive and open its icon. Double-click on the *Installer* icon to open it.

This brings up a screen that lets you install the *LaserWriter* file, plus one of three font options: minimum set (Times, Helvetica and Courier, all in 12 point size); standard set (Times and Helvetica in 9, 10, 12,

GETTING HOOKED

Plug the AppleTalk box into the printer port on the Mac. Make sure it fits snugly and tighten the screws. If you still plan on using the ImageWriter, connect it to the modem port.



Two cables are joined together using an AppleTalk connector.

14 and 18 point and Courier and Symbol in 12 point); or complete set (Times, Helvetica and Courier in 9, 10, 12, 14, 18 and 24 point, plus Symbol in 9, 10, 18 and 24 point). The more fonts you install on the disk, the more memory is required on the Laserized disk. Still, it's not necessary to install a huge set of fonts, since the LaserWriter doesn't use them while printing, relying instead on its own built-in fonts.

On a one-drive system, click on the EJECT button, which frees the disk drive to accept the disk you want to Laserize. When you insert it, the disk's name appears in the box at the bottom right side of the screen. The box on the left shows how much space will be required to install a given font set, plus an indication of how much space is left on that disk. If there isn't enough room left to install your selection, the INSTALL button appears dimmed and won't work if you try to use it.

Just click on INSTALL to Laserize the disk in the drive. When using a single drive, you'll have to swap disks a few times. The Mac ejects the disk once it's been successfully Laserized. That disk now contains two new icons in its System folder: the *LaserWriter* printer icon, and the *Laser Prep* icon. A new desk accessory called Choose Printer has also been added.

Once the *LaserWriter* file has been

The Mac is connected to AppleTalk via a small box that contains an isolation transformer (which protects the machinery from electrical interference) and plugs for inserting the network cables. AppleTalk uses a shielded, 78-ohm twisted-pair cable available in long rolls and short lengths. When you install the cable, put an AppleTalk connector at every likely location for a computer or other node, which will make it easier to add on to the network as your needs grow. If you use continuous cable, remember to cut the cable and attach a connector at each node location.



The heart of the network revealed.

installed on your disk, you'll still have to tell that disk to use the LaserWriter when printing. (See the series of dialog boxes for a walk-through of the procedure.) Boot the disk and use the Choose Printer option from menu underneath the Apple icon. A dialog box appears, with two icons at the far right of the box and two buttons on the bottom. First, select the printer port icon (as opposed to the modem icon), then choose the APPLE TALK CONNECTED button at the bottom. (When you do this, a subdialog box appears to remind you to make sure AppleTalk

is indeed connected.)

All printers connected to the selected port with drivers residing on the System disk (or volume, if using a hard disk) appear in the scroll box. Just click on LASERWRITER, click OK, and you're ready to print! (Occasionally, for reasons unknown to anyone except gremlins, the LaserWriter doesn't appear in the scroll box when AppleTalk is selected as ON and the port selected is the printer port.)

TALKING BACK TO APPLTALK

As is the case with any sort of machinery, you'll probably have the occasional spot of trouble with your new network.

If your network doesn't seem to be working and you can't figure out why, the first thing to do is make sure all connections are tight, then shut everything connected to the network off for 30 seconds. Then restart. If the gremlin was caused by a loose connection, this whole-hog approach should take care of it.

If there's still a problem, disconnect everything and then start connecting Macs back up to the network, one at a time, starting from the machine closest on the network to the LaserWriter. The gremlin could be anywhere, from a faulty port on the Mac itself, to a bad wire, to a piece of hardware or software that mysteriously jams up the works. Usually, it's caused by a slightly

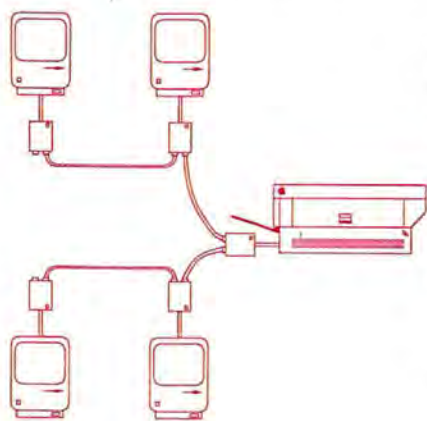
Line up the plug's flat side with the symbol on the AppleTalk connector to assure a perfect fit. Be sure to press firmly so the connection is tight.



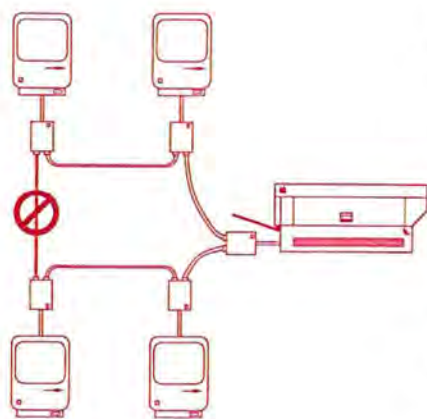
The connection is made. The cables at the bottom connect to other Macs on the network.



THE SEEDS OF APPLE TALK



The network must terminate with two end points. An AppleTalk network configured in a loop doesn't work.



loose connection—so slight, in fact, that it can hardly be seen when you look at it.

Once the network has been disconnected, your disks will usually have to be told that the LaserWriter is connected again. Then again, this sometimes happens even when the network hasn't been touched! (Gremlins work overtime, too.)

To remedy the problem, go to Choose Printer, select the printer port, choose APPLE TALK CONNECTED from the buttons at the bottom of the dialog box, and wait to see if the LaserWriter appears in the scroll box. If it doesn't, select APPLE TALK DISCONNECTED and hit OK. Then, select Choose Printer again and go through the whole process until the LaserWriter decides to put in a grand reappearance.

Occasionally, a piece of hardware, such as a hard disk, causes problems on machines up the line from the Mac it's connected to. The symptom of this is usually that the Macs upline simply won't print to the LaserWriter. If your network inexplicably goes down, first try the steps outlined above, reconnecting machines one at a time until all is well again.

Some programs, games in particular, initialize the printer port when they start up. This will crash AppleTalk. The way around this is to either disconnect AppleTalk before booting the disk, or just don't boot it on that machine. After all, there's work to do! After ejecting the disk, shut all the nodes in the system off for about 30 seconds. When you power back up, everything should work just fine.

BEYOND THE LASERWRITER?

So what else can you do with AppleTalk besides print? As of this writing, not a whole heckuva lot. Mac watchers have been straining to see file servers, print spoolers and other high-technology goodies on the horizon, but these predictions have just begun to materialize.

Among products not available as of press time (but which should be in stores by the time you read this), are two servers being specifically planned to work with AppleTalk—Micro Designs' *Keeper* and InfoSphere's *MacServe*. The *Keeper* is a file server in the form of a hardware box, while *MacServe* is software that converts any hard disk to a disk server (see *MacUser*, October 1985, "File Servers—The Macintosh Office's Missing Link").

Printer servers, which are intelli-

gent buffers that can free up networked computers to do other work while their data is printing, are still only a twinkle in a businessman's eye in the Mac universe. There's currently no device capable of print serving to the LaserWriter (although *MacServe* should do this also), since that printer depends on finding a Mac, or something as intelligent as a Mac, at the other end of the connection. Any print server that could work on AppleTalk would have to be made to look like a Mac to the LaserWriter. (The LaserWriter isn't a print server; its memory is used to translate whatever data is coming in into PostScript, the page description language built into its ROM.)

As of press time, about all there is to do with AppleTalk besides share a LaserWriter among terminals is play *MazeWars*, a multiplayer game in which everyone moves through a maze trying to find everyone else. When you see another player face-to-face (or should we say eye-to-eye, since characters in the game look like gigantic eyeballs with little tails on their backs), shoot first and ask questions later. The game was never officially released, but it's easy to find through users' groups and other Mac clubs.

Of course, too much *MazeWars* has been known to increase office rivalries ("I don't care that Howard stole the Burnsweiler account—the little twerp just shot me in the ass!") and, in many cases, to decrease productivity dramatically.

Well, there is the LaserWriter. And the *Keeper* and *MacServe*. And, even without *MazeWars*, that's enough to keep many of us Apple-Talking for at least awhile. ☐

DEVELOPERS GO APPLE TALK

The AppleTalk Developers' Association announced its formation at November's COMDEX, where Guy Andre Mariandre was elected President of the group. (Mr. Mariandre is currently the Vice President of Tangent Technologies Ltd., developers of *MacBridge*, the first PC to AppleTalk interface card.)

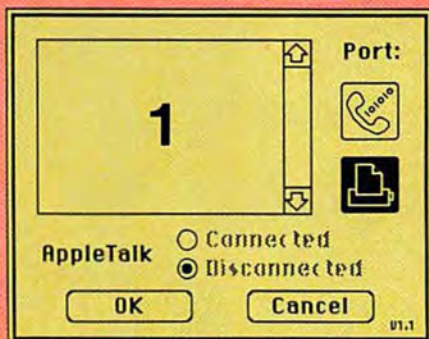
ATDA will bring together firms

developing AppleTalk products like file and disk servers, electronic mail systems, multiuser software and computer conversion software.

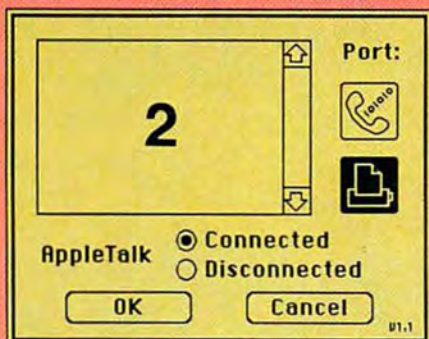
For details, contact the AppleTalk Developers' Association, c/o Guy Andre Mariandre, Tangent Technologies Ltd., 5720 Peachtree Parkway, Norcross, GA 30092. (404) 662-0366.

THE SOFT SOLUTION

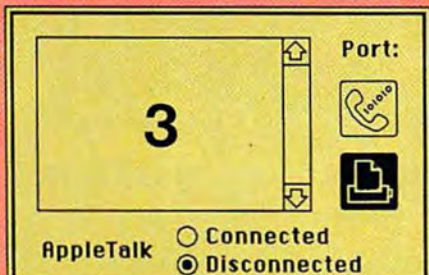
Here's what to do when your AppleTalk network absolutely refuses to recognize that a LaserWriter is on-line. Before you run through this sequence, check and be sure that all mechanical connections are tight. Then start by selecting the Choose Printer desk accessory.



This figure only applies to HD-20 users. If there is no HD-20 attached, you'll see what is shown in the next figure. In this case click OK and select the Choose Printer DA.



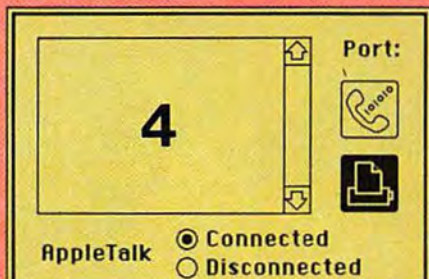
When this dialog appears, click Disconnected.



Please make sure the AppleTalk connector is disconnected from the printer port.

OK

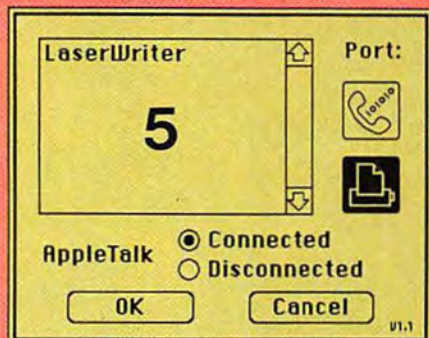
This subdialog will appear. Click OK and then click OK in the main dialog box.



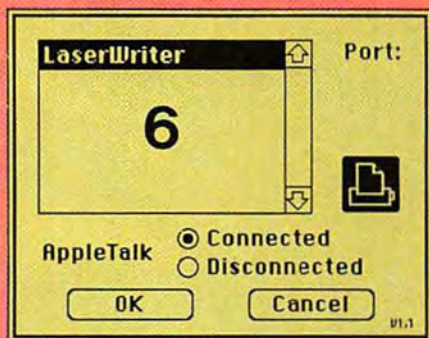
Please make sure the AppleTalk connector is connected to the printer port.

OK

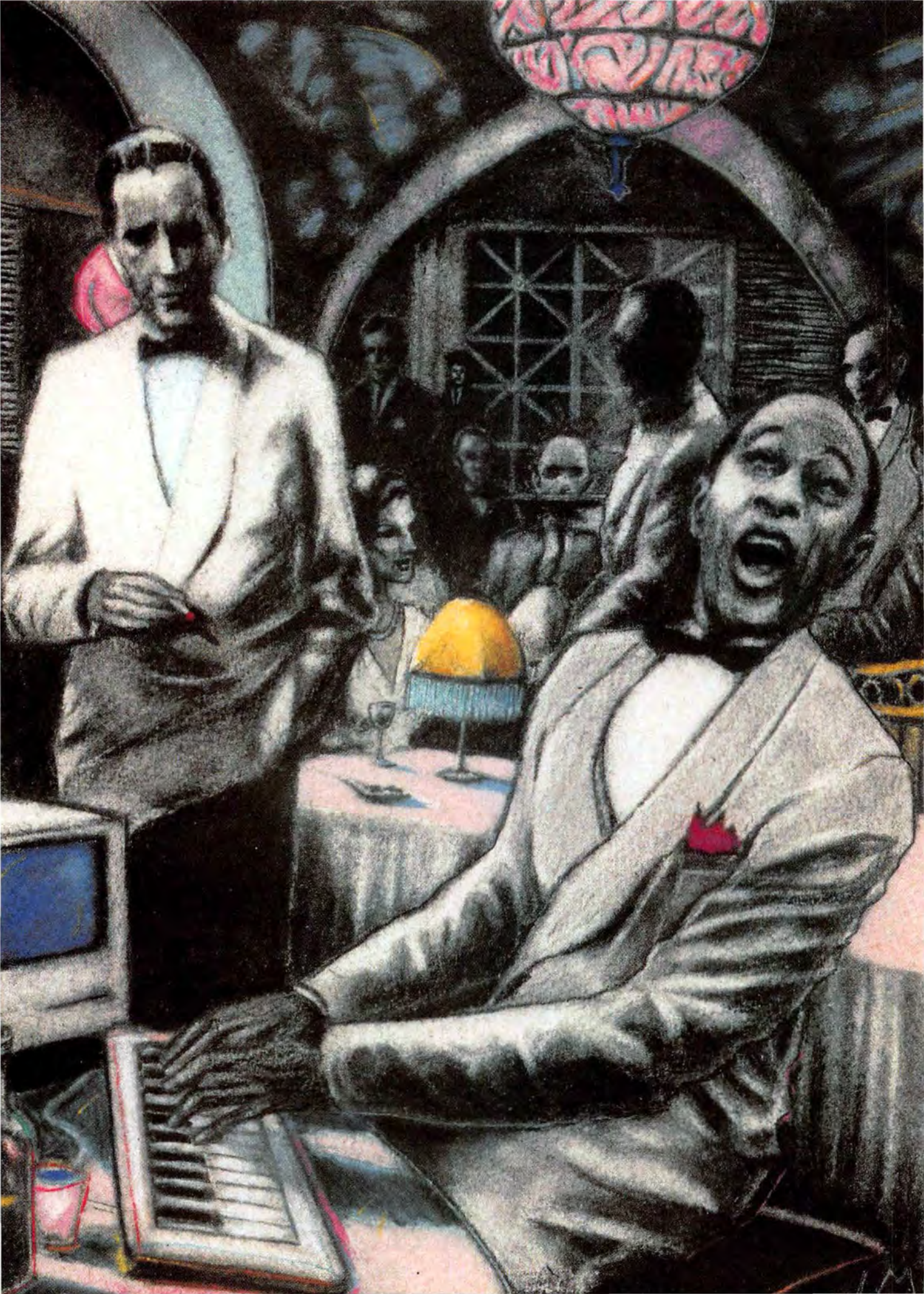
Select Choose Printer once more. When the dialog box reappears, click Connected. Then click OK in the subdialog.



Wait a few seconds until the magic word "LaserWriter" appears.



Select LaserWriter and click on OK. And Print! Note that when you selected the LaserWriter the phone port icon disappeared and the printer port icon was highlighted. That's because the LaserWriter can only work through the printer port.



PLAY IT AGAIN, MAC!

by

David

Barnett

Bring a whole music studio to your Mac.

"THE MACINTOSH STUDIO." That's a phrase we may see in Apple's promotional pamphlets one day in the future, accompanied by pictures of the "Studio" network: drum machines, musical synthesizer keyboards and other goodies all clustered around a solitary Mac *sans* conducting baton and music stand. Why?

Because the Macintosh has taken the music world by storm. Some of the most interesting and capable programs being crafted for the Mac are designed for writing music. For making exotic sounds. And for teaching those that thought they would never understand music the-

ory, exactly what written music means and what it sounds like.

Deluxe Music Construction Set is a newcomer to the Macintosh music program field, which began with Hayden's popular *MusicWorks* and expanded with Great Wave Software's *ConcertWare* series. Although one might wonder if this market is already saturated, *Deluxe Music Construction Set* sports some advanced abilities and unusual features that award it a place in the Hall of Masters.

PUTTING PEN TO PAPER

The main operating screen looks very promising. In the largest window, there's an empty bar of music staves just begging to be filled in. Bordering it are two other windows that provide most of the ways to enter music into the score. One is the Piano Keyboard, and the other is the Note palette.

First, select a rhythmic value the same way you would choose a tool in *MacPaint*. Pitch values can be entered in one of two ways. If the "Insert Note in Score" box under the piano keyboard is checked, clicking on a piano key will insert the corresponding note in the score. Notes play as they are entered, demonstrating the relationship between each note and its written representation. This is great for those people who are just beginning to learn music.

Notes can also be written right into the score by simply moving the cursor up to the score window. As soon as the cursor enters the window, it changes to a note corresponding to the selected rhythmic value. Place the note on the line or space you need and click to enter it on to the staff. Pressing the mouse button and dragging the cursor higher or lower on the staff changes the note's pitch accordingly. Drop it where you want it by releasing the mouse button. Notes of the same rhythmic value can be entered very quickly this way.

A new rhythmic value must be

PLAY IT AGAIN, MAC!

selected in the palette window to put in other types of notes, which can get to be a laborious process—click in the palette window, click on the staff window, palette window, staff window, palette, staff—it can be interminable! But Electronic Arts has provided an alternative: Pressing 1 on the Mac keyboard selects a whole note rhythmic value, 2 chooses a half note, and so on. Music can be entered fairly quickly by selecting rhythms with the left hand and mousing the pitches in with the right.

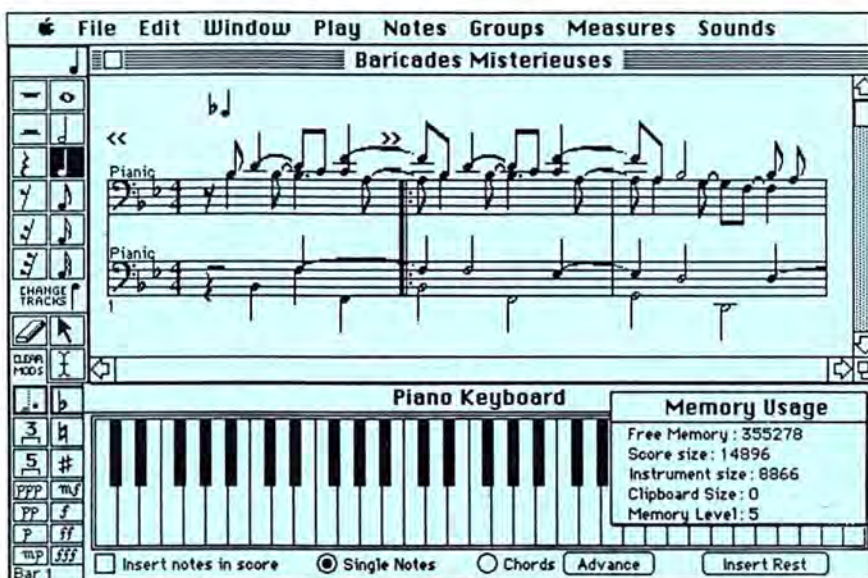
MANIPULATING MUSIC

So now some notes are entered. What can be done with them? Well, you can beam them, flat them, tie them, transpose them or do any of a number of other things to them.

First, select a note or a group of notes by drawing a selection box around them. (Selected notes are outlined in the score window.) Selections can now be made from either the Note or Measure menus to modify the selected music. For example, selecting SET INSTRUMENT from the Measures menu lets you change the sound of a selected group of notes.

Listen to your music by choosing PLAY from the Play menu. How does it sound? Pretty good! *Deluxe Music Construction Set* comes with 27 sound files, which cover a reasonable variety of sound types. Some have unusual and humorous names, such as "Harpsthrizer" and "Twisted Bow Tie." These instrument sounds can't be modified as completely as those in other music programs, but they can be varied by setting "Play Styles."

Ten style variations are available. They range from normal to slow attack or low vibrato. Using the play styles is a method of adding "flavor" to the preset sounds while saving memory for notes, since adding a new instrument to a song uses up much more memory than altering the play style of an instrument already in use. A particular selection of instruments can be saved with a particular song, giving composers a lot of control over the amount of memory that goes to notes or to instruments. The disk comes with



This is the general operating screen with some music entered. The memory management window automatically updates itself as notes are entered.

some demo tunes that demonstrate how these play styles can be used.

Two options show which notes are being played. The FLASH NOTES option blanks out the notes and flashes boxes on the score while the notes are playing. The PLAYER PIANO selection is more entertaining. The keys on the piano keyboard flash as they're played—the player piano of the 80's! Either is fun to watch, and you could learn some musical lines by following them closely. Still, only four notes at a time can flash in either mode. If more than four notes are entered in the score, the Mac selects four by itself.

PIN FEED MUSIC

The area in which *Deluxe Music Construction Set* really stands above anything else in its price range is in the control the user has over the layout and printing of the music notation. There is no limit to the number of notes that can be displayed and printed.

The placement of a note within a measure determines how easily the music can be read. (Entire books have been written covering the "art" of music copying.) Most computer notation programs use a strict mathematical algorithm to calculate the placement of notes according to

their assigned rhythms. For instance, a half note takes more room than an eighth note. A musician reading a part gets visual clues from the placement of notes, which helps in figuring out the rhythm quickly. Most computer algorithms are approximations at best, and *Deluxe Music Construction Set* does have a standard algorithm to control the initial placements of the notes. But once they're placed, the fun begins.

You can point at a note and tug it along the staff to move it to a better-looking position. (The pitch, or up and down position, does not change. Just the right to left position changes.) This becomes crucial when lyrics are added to a melody line. The length of a word is determined by how many letters it contains, and by the size of the font chosen for the text. Tugging the notes along the staff allows accurate placement of a note head above the proper word. *Professional Composer* is the only other Mac music program that allows lyrics to be added to the score.

The text entry ability is certainly a very important part of the program. When the text tool is selected, a text box comes up wherever you click in the score window. Then just type away. The text box can be resized at any point, and can be moved around

with the mouse for accurate placement. Any font and font size in the System can be selected, although it saves memory if you keep the number of fonts to a minimum. The text cannot be tugged around the way the notes can, though, so be careful how you line up notes and text.

Extensive control over the overall layout of a page of written music is done from the "Score Set Up" window (see illustration). This is where Macmusicians can add staves (up to a total of eight), alter the width of the score, change the number of bars to a line and handle many other layout parameters. This much control is unprecedented in such a low-priced product.

Another unusual and very useful option is the "2 tracks per Staff" option. This, combined with tugging notes and rests, allows complicated copying tasks to be done (see figure). One quick note about an intriguing option: If you enter a

chord, the INVERT menu command will automatically invert it.

Included in the System are three music symbol fonts. One contains the actual music symbols used by the program. These are adequately designed. The Symbols font has pedal, ornament and articulation markings. The GuitarFret font lets users construct guitar chord fingering charts. These fonts can be moved into other systems with the *Font/DA Mover*.

THE LAST MOVEMENT

Deluxe Music Construction Set is a powerful music notation program with standard music playing ability. The sounds are similar to those in the other playing programs, but unfortunately, there is no way to construct your own sounds. Although *Deluxe Music Construction Set* can display many notes, the Mac can only play four at a time, although you can hear more notes by using the MIDI play option to send note

information out over one of 16 MIDI channels to an external synthesizer. Patch changes (analogous to instrument changes) can also be programmed. It would have been nice to see this ability more fully developed, so that separate voices could be sent to different MIDI channels, or so that music could be fed to the program through a synthesizer.

The user interface makes sophisticated use of windows. At times it seems like Electronic Arts' designers went further than they had to in keeping windows active while other things are happening. In fact, it's easy to select so many display options that the music playback becomes unsteady!

It takes a while to get used to the procedure of entering and modifying notes and symbols. Once you get the notes onto the staff, the control you have over their final placement is extensive. The music symbol fonts are a nice touch, and let you dress up your printout.

Music printing is where *Deluxe Music Construction Set* stands head and shoulders above the competition. There were some quirks, however, in using the LaserWriter to print scores. The print quality was not quite as good as expected, and a bug surfaced when the print procedure was canceled. The ImageWriter printouts were good, though, and since most individuals own an ImageWriter, not a LaserWriter, the problems with the laser printer shouldn't concern most people. Someone scoring for a full orchestra should get *Professional Composer*, but those doing almost any other writing or copying chore will find this program up to the task.

The program runs on a 128K machine, but is limited to only short songs, with just a few sounds available. A "Memory Usage" window warns composers when things are getting too big for memory. Users would be hard pressed to push a 512K Mac to its limits, but a second drive comes in handy when storing your compositions.

The manual has a helpful tone, but
(continued on page 116)



An example of 2 tracks per staff.

Score Setup			
Bars Per Line	<input type="text" value="2"/>	<input checked="" type="checkbox"/> Paged Score	
Beats Per Min	<input type="text" value="90"/>	<input type="checkbox"/> 2 Tracks per Staff	
Score Width	<input type="text" value="441"/>	<input type="checkbox"/> Screen Width	
Volume	<input type="text" value="4"/>	<input type="checkbox"/> Printer Width	
		<input type="checkbox"/> Show Play Styles	
Choose Staff Number <input type="text" value="1"/>			
<input checked="" type="radio"/> Treble Clef	<input type="radio"/> Tenor Clef	<input checked="" type="checkbox"/> Staff Sound On	
<input type="radio"/> Bass Clef	<input type="radio"/> Alto Clef	<input type="checkbox"/> Hide Instruments	<input type="checkbox"/> Hide Key/Clef
<input type="button" value="Add Staff"/>		Space above staff <input type="text" value="61"/>	
<input type="button" value="Delete Staff"/>		Space below staff <input type="text" value="60"/>	

The Score Setup window. Fine control of the actual printout is handled through this window.

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"BELIEVE THAT'S MATE"



Sargon III versus Psion *Chess: Mac chess in* *third dimension.*

THE OPPONENTS FACED EACH other across the board. They were cold, emotionless, expressionless. There was no apparent indication of the importance of this confrontation, nor of the pressure placed on the combatants. There were only the periods of empty silence—some long, others very brief—followed by the precise movement of the pieces. The clock measured the beat as the soldiers performed an intricate dance of attack and defend.

The old master, *Sargon III*, a classic strategist, took the offensive and maneuvered troops with skill into positions of power. The youthful antagonist, *Psion Chess*, defended

with movements of infinite finesse. As the day closed, soldier after soldier had met with death, and neither commander could find a weakness in the opponent's position. The awareness that there was no win in sight settled on both players. A truce was declared and the game finally ended in a draw.

While this scene is admittedly a bit fanciful, it is a fitting entrée to a challenge match between *Psion Chess* and *Sargon III* on the Macintosh. *Sargon III* has been the chess game of choice on the Apple II for several years, and until recently the only serious commercial chess program for the Mac. Now *Psion Chess*, a game that won the 1984 Microcomputer Chess Championship on a Sage, has appeared on the Mac as a challenger to *Sargon III*. The challenge is a mighty one, for not only does *Psion Chess* play extremely well, it also brings a whole new dimension—the third dimension—to the game with a stunning three-dimensional graphic display.

by Michael D. Wesley and Ted Salamone

I BELIEVE THAT'S MATE

SIMILARITIES

Sargon III and *Psion Chess* are both full-featured chess programs that understand all the essential rules of the game, including castling to either side, draws and stalemates, capturing *en passant* and pawn promotion. Both programs permit promoting to a piece other than a queen.

Sargon III and *Psion Chess* provide several levels of play, determined by the length of time devoted to the search for a best move. These levels vary from 5 seconds per move to infinite consideration time. At the infinite level, the program will continue to search until the player forces it to stop. This level is used primarily for solving chess problems. An easy play feature in both programs prevents the computer from continuing the search during the opponent's move time. This handicaps the computer to give novice or occasional players a chance to win.

To begin a game, both *Sargon III* and *Psion* rely on opening libraries (preprogrammed sequences of standard moves). The opening library on either program can be disabled, though, forcing the program to analyze every move. Both programs assume that the human will play the white pieces, although this can be reversed through an option.

The pieces are moved graphically. Players move by picking pieces up with the mouse and dropping them on the desired square, a vast improvement over early chess games that required the user to enter the notation for each move. The Mac's moves are automatic, with pieces moving as if by magic. Neither program allows illegal moves.

Moves are recorded in both programs in standard chess notation. They can be reviewed simply by scrolling through a window. The move list can also be printed out to provide a permanent record of a game. Both *Sargon III* and *Psion Chess* permit games to be saved at any point so the player can stop a game in progress and come back to it, or review a completed game at a later time. Games can also be replayed with moves coming quickly and automatically, or on a move by move basis so the game can be

PSION CHESS VERSUS SARGON III: LET PLAY BEGIN

Chess grandmaster, Dr. John Nunn, analyzes play as *Sargon III* and *Psion Chess* battle it out. . . .

GAME ONE— ONE MINUTE PER MOVE

White <i>Sargon III</i>	Black <i>Psion Chess</i>
1 e2-e4	c7-c5
2 Ng1-f3	e7-e6
3 d2-d4	c5xd4
4 Nf3xd4	Nb8-c6
5 Nb1-c3	a7-a6
6 g2-g3	Ng8-f6
7 Nd4xc6?	

An unusual and ineffective move. The only point of playing "g2-g3" is to develop the kingside by "Bf1-g2" and "0-0." In the game, White fails to do this and the pawn move proves to be not only a waste of time but even a weakening. I suspect that "6 g2-g3," which is a standard grandmaster move, was in the *Sargon III*'s openings "book," but the program wasn't instructed on the correct follow-up.

7	. . . b7xc6
8 e4-e5	Nf6-d5
9 Nc3xd5	c6xd5
10 Bc1-e3	Qd8-c7
11 f2-f4?	

This creates further gaps in White's already fragile position. "11 Be3-d4" would have kept Black's advantage within bounds.

11	. . . Ra8-b8
12 Be3-d4	Bf8-c5!

A strong move giving *Psion Chess* a winning position. There is no reasonable reply to the threat of "13 . . . Bc5xd4, 14 Qd1xd4 Qc7xc2" winning a vital pawn.

13 Bd4-c3	Qc7-b6
-----------	--------

Black could have gained material immediately by "13 . . . Bc8-b7" threatening ". . . d5-d4," but the move played is also strong.

14 Qd1-g4	0-0?
-----------	------

Black keeps some advantage even after this error, but *Psion Chess* could have wrapped the game up by "14 . . . d5-d4, 15 Qg4xg7 Rh8-f8, 16 Bc3-d2 Qb6xb2, 17 Ra1-c1 Bc8-b7, 18 Rh1-g1 d4-d3" picking up White's king's rook. It is strange that after having played the early part of the game so well, *Psion*

Chess completely loses the thread and makes a whole series of pusillanimous moves.

15 Bf1-d3	d5-d4
16 Bc3-d2	Qb6xb2
17 0-0	d7-d5

Black has won a pawn, but White's king has slipped away out of danger. The extra pawn should turn the game in Black's favor eventually, but *Psion Chess* seems oblivious to the potential danger on the kingside.

18 Kg1-g2	Bc5-e7
19 Qg4-h5	h7-h6
20 f4-f5	Rf8-d8??

A terrible blunder, which I find hard to explain. "20 . . . e6xf5" was essential, when Black still has all the winning chances.

21 f5-f6!

Of course, *Sargon III* rips open Black's kingside and develops a crushing attack.

21	. . . Be7-f8
----	--------------

If Black had played "21 . . . g7xf6" *Sargon III* could have forced an attractive mate by "22 Qh5xh6 f7-f5, 23 Rf1-f4 Qb2xa1, 24 Rf4-g4 + f5xg4, 25 Qh6-h7+ Kg8-f8, 26 Qh7-h8 mate."

22 f6xg7	Bf8xg7
23 Qh5xf7+	Kg8-h8
24 Qf7-g6	Bg7xe5
25 Qg6-h7mate	

GAME TWO— THREE MINUTES PER MOVE

White <i>Sargon III</i>	Black <i>Psion Chess</i>
1 f2-f4	

A rare but perfectly reasonable opening. Human players often choose such eccentric openings against computers to take the machine out of its openings "book," but it's unusual to see a program include such unorthodox variations.

1	. . . d7-d5
2 Ng1-f3	Ng8-f6
3 e2-e3	Bc8-g4
4 h2-h3	Bg4xf3
5 Qd1xf3	e7-e6
6 Nb1-c3	Nb8-c6

Black develops its pieces adequately but then finds that there is little it can

(continued on page 84)

SARGON III: REPORT CARD

Overall rating: ●●●●

Follows Mac Interface:	●●●●
Printed Documentation:	●●●●
On-Screen Help:	None
Performance:	●●●●
Support:	●●
Consumer Value:	●●●●

Comments: Powerful chess player, with an excellent set of classic games.

Best Features: Huge number of games and problems, including openings and endgames; power of playing algorithm.

Worst Feature: Lack of a game clock.

List Price: \$49.95.

Published by Hayden Software, 600 Suffolk St., Lowell, MA 01854, (617) 937-0200.

studied or altered.

Both *Sargon III* and *Psion Chess* have a wide range of special features that help teach players the finer points of the game. Taking back a questionable (or, let's face it, downright horrible) move is only a menu choice away, and can be selected repeatedly back to any previous position. This lets a player observe the consequences of a particular move or combination, then go back and try another approach.

Each program analyzes the best possible move for both players from every position, and will suggest a move for the human player on request. Both *Sargon III* and *Psion Chess* will also display their analysis so you can trace the best line available for both sides. *Sargon III* will even display the tree search in progress, which is fascinating to watch as it screams by at incredible speed.

The board can be reversed in the middle of a game, so a losing position suddenly becomes a winning one. Pieces can also be changed or removed with menu choices. This feature is best used for setting up chess problems as a learning exercise, but there are other uses as well. After losing several games in frustration,

for example, you might want to remove an offending queen before continuing with a new contest.

Psion Chess and *Sargon III* have a selection of complete games and chess problems on disk, so you can watch some of the greatest chess games of all time played out move by move. *Sargon III's* selection of games and problems is much greater than that of *Psion Chess*, and includes openings and endgames as well as complete games.

DIFFERENCES

Although both games can display a game in progress from an overhead, two-dimensional perspective, *Psion Chess* also plays in three dimensions, so the entire screen is filled with a board that looks as though it were sitting on a table in front of the player. The display is spectacular, and makes the play of *Psion Chess* much more realistic. Graceful, modern pieces appear to move backward and forward with simple click and drag motions of the mouse.

Sargon III does not have a game clock, which may not matter to a beginner or casual player at all. It is, however, an important feature for serious chess players. *Psion Chess* does have an excellent clock function. The clock's major drawback is that it only appears in the window where moves are recorded, and this window is only visible when the board is shown in two dimensions. It would have been nice to have the option of seeing an actual clock on the three-dimensional display.

Sargon III has a 100-page, exceptionally clear manual that includes a tutorial on the game of chess, a listing of the classic games found on the disk, and a bibliography. *Psion Chess* comes with a very small manual with very little explanatory material, but does provide on-screen help for all of its menu options.

Psion Chess is a program designed, written and published in Europe, which explains why the menu choices can be displayed in several different languages. The program functions in French, Spanish, German, Italian, Swedish and, oh yes, English. When you boot your Mac

with the *Psion* disk, you install an English keyboard. That basically means that the bottom row of keys is shifted one place to the right (N becomes B, M becomes N, and so on). That doesn't affect play in any way, but if you quit without rebooting this rather different keyboard mapping will be in effect for the next program you run. That can cause problems or, at the very least, be disconcerting. So reboot after you quit playing *Psion*.

Sargon III was written in the United States by Dan and Kathe Spracklen. Its menus are only written in American English.

Sargon III is disk based, so it accesses the disk when it is forced out of its opening library, either by an unexpected move from the human player, or when its preprogrammed opening runs its course (usually around the ninth move). *Sargon III* also returns to the disk throughout the game when its opponent makes a move not included in its best-line analysis. *Psion Chess* is RAM based. Once the program has been loaded into memory, it only returns to disk when you want to load in a saved game or problem. This makes *Psion Chess* very fast, not only in how it plays, but in its search capability as well.

PSION CHESS: REPORT CARD

Overall rating: ●●●●●

Follows Mac Interface:	●●●
Printed Documentation:	●
On-Screen Help:	●●●●●
Performance:	●●●●●
Support:	●●
Consumer Value:	●●●●

Comments: Powerful chess player, with a superb three-dimensional display mode.

Best Features: Great graphic display, power of playing algorithm.

Worst Feature: Occasional play lapses leading to odd moves.

List Price: \$59.95.

Published by Psion, Inc., 40 Lindenman Dr., Trumbull, CT 06611. (203) 371-4371.

I BELIEVE THAT'S MATE



Sargon III. The search window will display the search tree on request.



Psion Chess, three-dimensional display. The menu bar remains hidden until the cursor arrow enters the area.

SEE HOW THEY PLAY

The determination of how good a chess program is, ultimately comes down to its quality and style of play. The sheer speed of the Mac's 68000 processor makes both *Sargon III* and *Psion Chess* formidable players, but each shines in a different way.

Computer chess programs historically have taken one approach to finding the best move. Called "brute force," it means that the program simply searches as many moves as possible looking for the best option. Given infinite time, the computer would search all possible moves from a given position. (See "Alpha-Beta Soup," *MacUser*, January 1986, p. 98.) The disadvantage of this approach is that the computer misses nuances of strategy, particularly innovative moves, that a human player would find. The best computer chess programs can be beaten by a human player who makes an intuitive, rather than purely calculated, move. *Sargon III* utilizes the brute force approach.

Recently, however, some programs have tried to implement arti-

(continued from page 82)

do with them. Black really should have staked out a bigger claim in the center by "6 . . . c7-c5."

7 Bf1-b5	Bf8-e7
8 0-0	0-0
9 d2-d4	Qd8-d6

In quiet positions, computers always have trouble finding constructive ideas, so the next few moves present a strange appearance as the pieces move to and fro indecisively.

10 a2-a3	a7-a6
11 Bb5-e2	Rf8-e8
12 Bc1-d2	Re8-d8
13 Be2-d3	

After a slight hesitation at move 11, the bishop settles on the best square. *Sargon III*'s "10 a2-a3" prevents Black exchanging the bishop by "... Nc6-b4."

13	. . . Rd8-d7
14 Nc3-d1	

White's long-term prospects lie on the kingside so it must be right to transfer the knight across to support an eventual attack.

14	. . . Ra8-d8
----	--------------

Black's line-up on the d-file is quite pointless while the file is blocked by the pawn at d5. Unfortunately, *Sargon III* removes this obstruction voluntarily and Black's pieces spring to life.

15 Nd1-f2	h7-h6
16 Qf3-q3	

We saw in the last game how computers can play well up to a point but then go completely astray. White has a clear advantage in this position and by "16 g2-g4," *Sargon III* could have started a very dangerous attack. The move played obstructs the g-pawn.

16	. . . Kg8-h8
----	--------------

17 c2-c4??

And this move effectively decides the game. *Sargon III* has overlooked a crucial point and *Psion Chess* pounces on the opportunity to win an important pawn.

17	. . . d5xc4
18 Bd3xc4	Nc6xd4!
19 e3xd4	Qd6xd4

Both White bishops are now under attack and one of them will be lost. Thus, *Psion Chess* wins back the sacrificed piece, together with a pawn interest.

20 Qg3-b3	Qd4xd2
21 Qb3xb7	Qd2xf4
22 Bc4xa6	Be7-c5

Sargon III's misfortunes are not yet over, because *Psion Chess* now sets up a paralyzing pin on the white knight. And, although *Sargon III* wriggles, *Psion Chess* steadily piles on the pressure until the knight can no longer be defended.

23 b2-b4	Bc5-e3
24 Ra1-e1	Rd7-d5
25 a3-a4	Nf6-e4
26 Re1xe3	

By jettisoning some material, *Sargon III* temporarily saves the knight, but the essential problem remains and the pressure is quickly renewed.

26	. . . Qf4xe3
27 Qb7xc7	f7-f5
28 a4-a5	Rd5-d2
29 Qc7-b6	Rd8-d4
30 Qb6xe631	Rd2xf2
31 Qe6-c8+	Kh8-h7
32 Qc8xf5+	Rf2xf5+
33 Kg1-h1	Rf5xf1+
34 Ba6xf1	Rd4-d1
35 Kh1-h2	Rd1xf1
36 b4-b5	Qe3-g3 mate

cial intelligence techniques that make the program more of a tactical player, looking for innovative combinations. *Psion Chess* incorporates some of these ideas. The techniques are not yet as refined as brute force, and sometimes produce odd moves, as can be seen in the playoff games between both programs.

To compare the two programs in competitive play, five games were played between *Sargon III* and *Psion Chess*, at levels varying from five seconds per move to three minutes per move. *Sargon III* was the victor in three of the games, with two

going to *Psion Chess*. The programs appeared to be evenly matched throughout, and all five games were fluctuating struggles that could have gone either way. Two of those games are reproduced here, with commentary by Dr. David Nunn, one of the world's top-ranked chess players.

Although *Psion Chess* has an edge over *Sargon III* in design, both programs offer an excellent game of chess, with enough variations and specialties to inspire long hours of hair-pulling, nail-biting, finger-tapping competition. ♠

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THE
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AND IN THIS CORNER...

Statistical replay

brings the excitement

of the boxing ring to

the Mac screen.

BY
ARNIE
KATZ

JOE LOUIS INCHES FORWARD AND flicks his jab again and again. Larry Holmes' head snaps back and little stars twinkle around his suddenly bleary eyes. It's only a minute into the third round, but the Brown Bomber is taking charge.

Looking at these two gladiators from your spot in Louis' corner, you sense the time is right. "Go for the knockout!" you scream, hoping Joe can hear you above the buzzing crowd in the arena. Immediately, he bores into the previously undefeated Pennsylvanian. Bam! Bam! Holmes' knees buckle, and the big guy hits the canvas. The scoreboard hanging above the ring tolls the count... 8-9-10! Louis raises his glove in victory.

That's a slice of typical action from Dave and Barry Murry's *Championship Boxing*. Sierra's Mac version of this game easily surpasses the earlier IBM edition. The designers had to make a lot of compromises when they created the graphics for the original edition, but the Mac's superb resolution makes possible a much more visually satisfying game. *Championship Boxing* is the kind of game that really belongs on the Macintosh screen.

The on-screen illustrations blend sharp linework and large shaded areas to evoke the authentic atmosphere of the fight game. Almost all the information and help screens are embellished with excellent artwork. The gym scene, which leads to the boxer generation and revision screens, is a symphony of ring characters right out of "Rocky."

THREE RINGS IN ONE

This versatile simulation is actually three games on a single disk. One or two armchair managers can choose to play in action, strategy and simulation modes. The first lets the player call each punch and block by press-



AND IN THIS CORNER...

ing the appropriate keys. The other two use a mathematical model to decide how and when a man tries a blow. The strategy mode allows managers to give their champions fighting instructions before each round and "holler" advice (by hitting certain keys) to cover up or go for broke during the action.

The difference between the strategy and simulation games is that in the former the computer controls everything. Since each boxer can select a different mode, simulation allows a solo gamer to enjoy any of the three versions against machine-directed opposition. It's also handy when you want to study a match-up without the distortion that managerial skill introduces.

The action contest gives the player a choice of seven moves: uppercut, head punch, cover head, body punch, cover body, step forward and step back. Each player has an assigned set of keys that initiate moves. In a head-to-head bout, the person who handles the boxer on the right side of the screen can use a numeric keypad if desired.

It can be exciting to vicariously step into a boxer's boots, especially against a human-controlled opponent, although a greater variety of possible maneuvers would have made the action mode a lot more challenging and improved its replayability. After a dozen real-time bouts, the lack of variety could become bothersome.

The strategy mode offers armchair managers a list of possible tactics that the boxer could use in the next round. The options vary according to the abilities of the fighter, the round and the course of the battle up to that point.

Possible manager's orders run the gamut from enthusiastic back-patting to suggestions to go for the head, aim for the body, stick the jab in his face and the like. Handlers can even tell the man in the ring to take a dive and grab the paycheck!

Start by picking the combatants. Then examine the "Tale of the Tape" to compare the ring rivals in age, height, weight, reach, number of fights and number of losses. Change a fighter's stats by clicking the "+" or "-" box next to a statistic to raise

or lower it.

The next screen establishes rules for the upcoming bout. The gamer clicks the mouse to pick the number of rounds (1-15), the length of each stanza (1-3 minutes), the scoring system (10-point-must or rounds) and whether the mandatory eight-count and three-knockdown rules are in effect. Finally, participants select the modes for each fighter. In a bout with two human managers, either boxer can be handicapped to equalize any difference in skill between the two competitors. The user can elect to have the record updated after every fight, good for playing tournaments, or have it remain constant to preserve a fighter's statistical "purity."

Managers view the well-rendered ring from front row center. The kingsize boxers, displayed in side perspective, face each other with gloves ready. The man who starts on the left stays there throughout the fight. It isn't realistic, but at least it does make it easy to tell whose man is whose.

Unfortunately, the boxers stand pretty far away from each other, even when supposedly battling "inside." That means the clinching and close-range bashing which characterizes the sport is completely missing, at least graphically.

Regardless of the mode selected for play, a special screen appears immediately after a round ends which shows the ringside commentator and a trio of judges. The sportscaster analyzes the action and describes each fighter's condition

with easily understood phrases like "Ali is breathing hard" or "Marciano is definitely tired." These comments often suggest strategies for the upcoming canto.

The judges score the action so that managers know how their charges are doing. This is especially important, since it isn't always easy to tell who's getting the best when the leather really starts to fly.





Championship Boxing shows a revised form of the between-rounds screen at the end of the bout. The commentator recaps the knockdowns and the judges post their total score. (Actually, one judge leaves immediately, while the remaining male and female arbitors appear to be making a late date with each other.)

INSIDE STAT REPLAY

Although the action version of *Championship Boxing* is fairly exciting and enjoyable, the strategy and simulation modes are obviously the main event. The program manipulates mathematical models to recreate many fine boxers of the past and present. These algorithms incorporate statistics which rate a fighter's abilities in areas like speed, aggressiveness, style, reach and even punching power.

The idea in this, and all other, statistical replay games is that the player controls a replica of an actual athlete who performs exactly the same way he would in a real-life situation. Not only is this nirvana for chronic second-guessing sports fa-

The Gym lets you customize your boxer any way you like.

REPUTATION (page 1)	
<p>Best Punch:</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> Job <input type="radio"/> Uppercut <input type="radio"/> Overhand Right <input type="radio"/> Left Hook <input type="radio"/> Body Punch <input type="radio"/> Right Hand Punch <input type="radio"/> Left Hand Punch <input type="radio"/> General Puncher 	<p>Starts to get tired in the:</p> <ul style="list-style-type: none"> <input type="radio"/> First Few Rounds <input type="radio"/> Middle Rounds <input checked="" type="radio"/> Last Rounds 
<p>Warmed Up and Fighting His Best:</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> First Round <input type="radio"/> Round 2 to 4 <input type="radio"/> After Round 4 	<p>How hard does he hit?</p> <ul style="list-style-type: none"> <input type="radio"/> Light <input type="radio"/> Average <input checked="" type="radio"/> Hard 

natics, but it opens the way for a multitude of "what if?" scenarios. Are you wondering how Larry Holmes would do against some of the past greats with whom sports-writers so often compare him? Match him against John L. Sullivan, Joe Louis, Rocky Marciano and Muhammed Ali and see for yourself.

The first stat games were non-electronic. Millions of people still play games produced by APBA Game Company, Strat-O-Matic and a host of smaller outfits, but the computer is giving dice-and-charts products a run for their money.

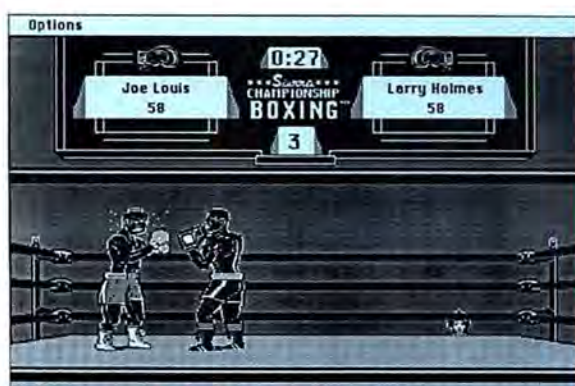
The obvious reason: playability. Computer stat replay games turn over all the rigamarole of generating random numbers, getting codes from cards and cross-indexing charts to the microprocessor. Unshackled from the drudgery of number-crunching, sports gamers can concentrate on the enjoyable part—directing the players.

Championship Boxing is the first stat game for the Macintosh, but others are already in development. Micro League Baseball Association, which currently makes *Micro League Baseball* for 6502-based systems, is readying an enhanced and expanded version for the Mac. A football title is also rumored to be a possibility.

ROLLING YOUR OWN BOXERS

The program disk includes a roster of approximately five dozen boxers of the past and present. Most of the great heavyweights are here, but those who dote on the lighter divisions, like middleweight and welterweight, will find only moderns like Ray Mancini, Livingston Bramble and Sugar Ray Leonard.

Louis and Holmes slug it out in the ring. Occasionally an overenthusiastic fan pops up for a better view.



Fortunately, there's a simple system that anyone with a smattering of fistic knowledge can use to recreate any man who ever stepped through the ropes. Clicking "Go to the Gym" on the main menu screen starts the creation process.

On the first screen, the player enters the name, age, height, reach and record of the boxer. Small "+" and "-" boxes next to each entry make these vital statistics easy to adjust as desired.

Next come four "Reputation" screens. The gamer uses the mouse to select desired choices from short menus. The first screen determines the fighter's best punch, how many rounds it takes him to warm up, punching power and fatigue factor. The next display governs punching accuracy, defense, toughness and the ability to deck an opponent. The final screen sets the fighter's aggressiveness, susceptibility to cuts, speed and physical appearance. (The game can show any boxer as a Black or White human, a cartoon person or an animal. You haven't lived until


you've seen Jack Johnson felled by a kangaroo.)

Determining a man's proper ratings takes time and research. Sports magazines, newspapers, radio, and television are good sources. Statistical analysis of boxing is still primitive, so it generally takes some intelligent guesswork to construct an accurate model. Those who don't want to go to all that bother can just build a boxer from scratch with any desired combination of strengths and weaknesses.

A GAME WITH A PUNCH

The documentation is divided among four separate booklets. One chronicles the history of boxing, another is a clinic for those who want to master the action mode, a third details the rules and the fourth is a slim folder which gives data specific to the Macintosh edition. Sierra also included a few update sheets to explain boxers who have been added or revised since the game originally appeared. The rulebooks are well-produced and cover all the necessities, but a "quickstart" sheet would be a help.

Championship Boxing is a better bet for sports lovers than for rank-and-file gamers. Ring fans will appreciate the attention to detail, but there is less interaction, except in the action mode, than in most typical entertainment programs.

But if you have any interest at all in the boxing world, throw your Mac into the ring, and let the Murry Brothers' magic transport you to the champion's corner. 

CHAMPIONSHIP BOXING: REPORT CARD

Overall Rating: ********

Follows Mac Interface:	●●●
Printed Documentation:	●●●●
On-Screen Help:	●●●●
Performance:	●●●●●
Support:	●●●●
Consumer Value:	●●●●

Comments: Can be played as an action contest or a statistical game. Outstanding translation.

Best Feature: Evocative graphics set the scene perfectly.
 Worst Feature: The animation is stiff, and the fighters don't get close enough to each other.
 List Price: \$39.95.
 Published by Sierra, PO Box 485, Coarsegold, CA 93614. (209) 683-6858.

THE SWAP SHOP

Beginner basics:

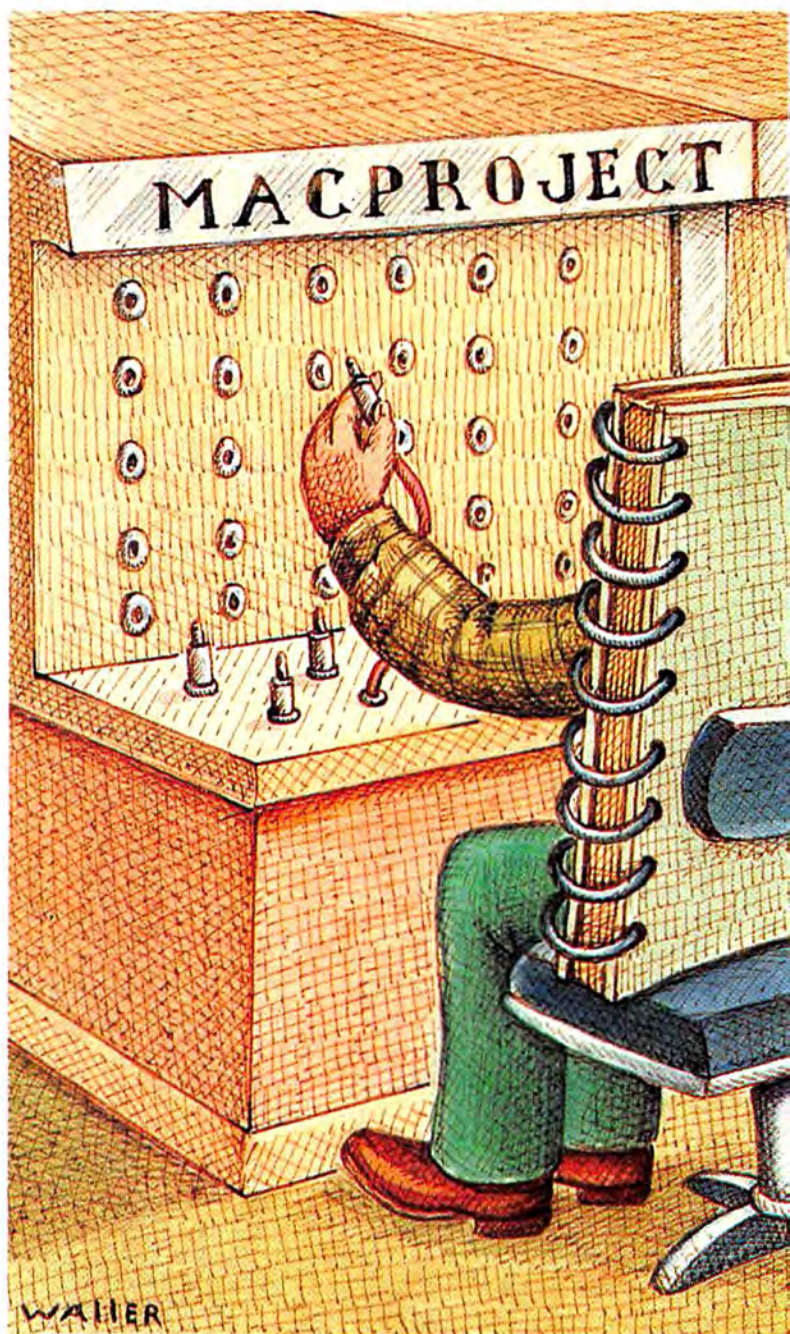
Working with the Clipboard, Scrapbook and Note Pad.

by

Sharon

Zardetto

Aker



CLIPBOARD, SCRAPBOOK, NOTE Pad. These Mac basics become second nature after a while, but they're hard to get straight at first. No wonder—while the Scrapbook and Note Pad have some overlapping capabilities (one is utterly dependent on the Clipboard, while the other can take it or leave it), the Clipboard can be used with either, both or neither of these accessories.

Confusing? It sure is. It's nothing

to be ashamed of, though. Many people who have had their Macs for a long time don't use these valuable tools to anywhere near their potential. Even if you've got the basics under your belt, can you:

- Paste something into the middle of a Scrapbook?
- Use the Note Pad to handle text placement in *MacPaint*?
- Recover something that has been replaced on the Clipboard?



- Handle multiple Scrapbooks on a disk?

THE CLIPBOARD

If the concept of the Clipboard is less than clear, that's because the Clipboard has some special, almost abstract, qualities.

It's an intrinsic part of the Mac's ease-of-use, being the vehicle that transfers information in and between programs. Yet, its existence is

ephemeral: it's held in RAM, the type of memory that is lost when the Mac bombs or is shut off or reset.

You never see something that actually looks like a Clipboard, the way you can see a Scrapbook or Note Pad when you pull them out.

Unlike its real-life counterpart, the Clipboard can't hold multiple items. It holds only one thing at a time, although that item can be as large as an entire document.

In most applications, you can open a window that shows what's on the Clipboard, but it's a "view-only" window. Nothing can be entered into it and nothing can be changed.

Data can be taken from the Clipboard and pasted somewhere, but it's still on the Clipboard.

Sometimes the information you get back from the Clipboard is not exactly the same as what you put on it. Although the alterations are the

THE SWAP SHOP

result of the applications involved, it's the Clipboard that seems to have a few quirks.

For all its uniqueness, the basic function of the Clipboard is simple. Choosing CUT or COPY in an application stores the selected information in the Mac's memory—"on the Clipboard"; choosing PASTE puts a copy of the Clipboard contents into an application. Since it is only a copy that gets pasted, the information on the Clipboard is intact for subsequent pastings.

The only way to put something on the Clipboard is with CUT or COPY. The Clipboard can't be erased (except by turning off or resetting the computer). Its contents can only be changed by using CUT or COPY again. The important thing to remember is that using CUT or COPY immediately puts the new information on the Clipboard; whatever else was there is almost always irretrievably lost. (See "Clipboard Undo.")

Because the Clipboard is in RAM, keep the computer on when you're transferring information from one program to another. This procedure was very trying in the "early days"

when Mac only came as a 128K single-drive computer, but it's less cumbersome now—things are quicker with the MiniFinder, and absolutely miraculous working with *Switcher* to move between programs.

While the Clipboard must be used with the Scrapbook, and can be used with the Note Pad, it is also often used by itself. Copying a paragraph in *MacWrite*, cutting a section of a *MacPaint* picture, transferring information between *Multiplan* and *Chart*—all operations like these depend on the Clipboard.

THE NOTE PAD

The Note Pad is the electronic equivalent of the spiral-bound paper pad that used to hold your homework assignments. This one has only 8 pages, each of which can hold up to 255 characters.

Information is entered into the Note Pad by typing directly on one of its pages. To transfer that information into an application—*MacWrite*, for instance—select the text in the Note Pad, cut or copy it to the Clipboard, and then paste it into the target document.

FOOTNOTES

MacWrite doesn't have a footnote option, but you can use the Note Pad to store the notes as you write. Later, you can paste all the notes at the end of your paper, or put a single footnote at the bottom of the appropriate page of your document.

Another way to enter text into the Note Pad is by pasting it from the Clipboard. Since the Note Pad is a text-only utility, you can't paste a picture into it even if you have one on the Clipboard. Actually, the Note Pad is not just text-only: it is 12-point Geneva plain-text only. No matter what font, size and style your text is when you put it on the Clipboard, it will be Geneva-12 in the Note Pad. This doesn't mean the Clipboard has lost the formatting information. The Note Pad just can't interpret it.

Information put in the Note Pad is stored on disk, unlike information on the Clipboard, which is stored in memory. Information on disk won't disappear when the computer is turned off or reset, while information in memory will.

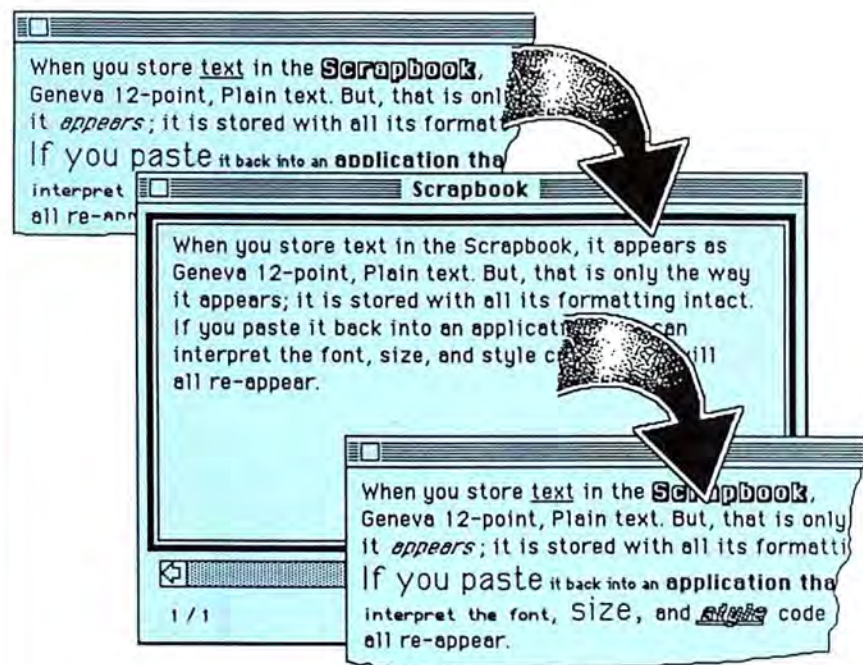
THE SCRAPBOOK

The Scrapbook is the most charming and useful item under the basic Apple menu. It can hold text or graphics, and, like the Note Pad, its contents are stored on the disk, meaning the data is safe even if you turn off the computer.

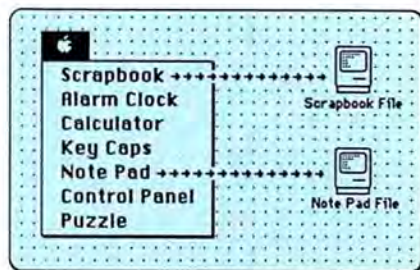
The only way to put something in the Scrapbook is by way of the Clipboard. Even text entries must be cut or copied to the Clipboard for pasting into the Scrapbook.

Whenever you paste something into the Scrapbook, a new page is added, right on top of the last page. While you might conclude that a new page can only be pasted in at the top of the pile, turning the latest entry into Page 1, this is not the case. The horizontal scroll bar lets you move through the pages—just turn to any page you want, and paste the latest item on top of it.

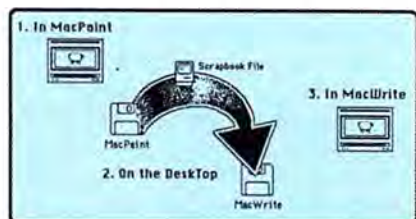
Cutting or copying from the



The Scrapbook can't display formatted fonts, but it does store them accurately; pasting the page back into *MacWrite* restores the formatting.



Selecting the Scrapbook or Note Pad from the Apple menu creates a related file visible on the desktop; all the information stored in the accessories is actually saved in these files.



To access a MacPaint Scrapbook from MacWrite, transfer the Scrapbook file to the MacWrite disk.

Scrapbook is not an entirely standard operation. There's no need to select the text or picture before choosing CUT or COPY—the page showing is always the one affected by the command.

Scrapbook storage has its limitations, besides the obvious one of disk space to hold the information. While it is possible to store a very large picture in the Scrapbook, it can't all show in the window; however, the entire picture is transferred back to the Clipboard when you cut or copy it from the Scrapbook. And, while the Scrapbook can store text, its appearance is similar to text in the Note Pad: 12-point plain Geneva. In this case, though, what you see is not what you get: despite its appearance, the text is stored the way it was originally created. Copy the text from the Scrapbook, paste it into the application it came from, and it will be as it was: the same font, size and style you started with.

TEXT AND MACPAINT

MacPaint has to take the blame for a lot of the initial confusion as to how the Clipboard works. When you use MacPaint, the Clipboard and text, you often get unexpected

results. The problem, though, is MacPaint's, not the Clipboard's.

MacPaint doesn't handle text the way MacWrite does. Once you've finished typing some MacPaint text, it becomes a part of the overall "bit map" of the screen. This means that the text is not seen as discrete characters, but as black and white dots, like everything else on the screen.

MacPaint can't interpret the invisible codes that word processors use to indicate the font, size and style of text. So, if you put some fancy text on the Clipboard and paste it into MacPaint, it will appear as plain 12-point Geneva. This happens whether the text has come directly from a word processor or from the Scrapbook. The thing to remember is that it is not the Clipboard that is doing less than it's supposed to. It's MacPaint that doesn't accept the full information.

Of course, MacPaint can do a few things with the pasted text. One is an obvious technique, the other one is less well-known.

First, when you paste text into MacPaint, it appears in a selection rectangle. If you hold down the COMMAND key, you can change the size and shape of the rectangle, and the text shifts around inside it to fill the new shape.

Second, before the text is pasted down (don't click that mouse button!), you can select any of the text formatting options and they will be applied to the text in the rectangle. Add or change as many options you want as long as the text is still "active" (not pasted down).

Because pasted text offers so much leeway in its format and placement, you may want to put yourself in a "paste-only" mode whenever you put text in MacPaint. Type whatever you want in the Note Pad first, copy it to the Clipboard, and then paste it into the MacPaint document.

Once you paste the text into your MacPaint document, it isn't really text anymore. If you select it, it is treated like any other portion of your picture. If you change the size of the selection rectangle while holding the COMMAND key, the contents stretch or shrink, but they are not rearranged.

If you need more proof that the text is really a picture, select it and try to paste it into the Note Pad. It won't work, because the Note Pad accepts only text. Want more proof? Select the "text" and put it in the Scrapbook, then paste it from there into MacWrite or Word. It is pasted as a picture, and can't be edited as a series of words.

ACCESSORIES AND FILES

Remember those wonderful moments right after you took the Mac out of its box? Did you dive right in and use your Mac after watching the *Guided Tour*, ready to figure things out for yourself? Did you explore and experiment with everything on the desktop? Does this script seem familiar?

"What's in that System Folder? Hmm, the *System* file (whatever that is), the *Finder* (ditto), the *Image-Writer* icon (okay, I can guess at that), and the Scrapbook and Note Pad Files. Those last two—they're under the Apple menu. Okay, I could use a little extra room on this disk, so I'll trash the Scrapbook. Hey, it's still in the menu! But I don't see it on the disk. What the... Okay, I'll pull out the Scrapbook—it says, "This space for rent...." Hey, the Scrapbook File just showed up on the disk again. But the Scrapbook is empty! This is a user-friendly computer? It's driving me nuts."

With the exception of the Scrap-

BASIC CLIPBOARD



Microsoft BASIC doesn't have a "Show Clipboard" option, but this brief program will display the Clipboard contents so you can see what part of a listing was last cut or copied.

THE SWAP SHOP

book message, which is currently just the rather staid comment "Empty Scrapbook," this scenario is still being repeated by many new users.

The confusion is the result of a misunderstanding about accessories and their files. Just as an application

like *MacPaint* creates documents, some desk accessories create documents to store the information they hold. These documents are referred to as "files," the general computer term for a collection of information. If you trash the Scrapbook File, the

Scrapbook itself is still there; the same goes for the Note Pad. (To get rid of the accessories themselves, you have to use the *Font/DA Mover*.)


Unlike applications that let you access documents by name, the Scrapbook can read only one file. It's the one named Scrapbook File, stored on the System disk (the one with the System file). The Note Pad can read only the Note Pad File on the System disk. If you rename either of these files while you're on the desktop, that accessory will start with empty pages once again.

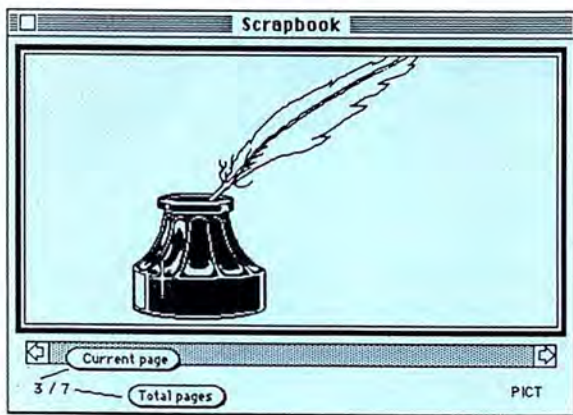
Accessories create disk-based files, another point of confusion for beginners. Imagine this scenario:

You have *MacPaint* and *MacWrite* on separate disks, to give yourself plenty of room. You're in *MacPaint*, and fill the Scrapbook with some pictures that will be needed in a *MacWrite* document. You switch to the *MacWrite* disk, pull out the Scrapbook and . . . your pictures aren't there when you need them.

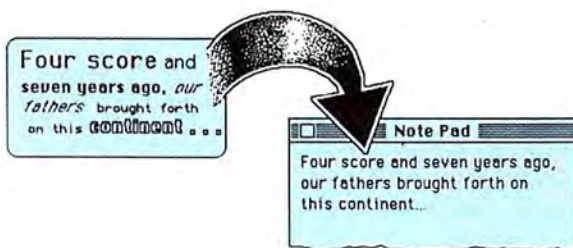
Knowing that the Scrapbook contains only the information stored in the Scrapbook File on the System disk makes it easy to understand how to transfer the *MacPaint* Scrapbook information to the *MacWrite* Scrapbook. Fill your Scrapbook in *MacPaint* and move that Scrapbook File onto the *MacWrite* disk. Then, when you're in *MacWrite*, pull out the Scrapbook, and everything you need will be there.

You can even work with multiple Scrapbooks on the same disk. Create a Scrapbook full of pictures while you're in *MacPaint*, quit to the desktop, and rename the Scrapbook File so that the Scrapbook can't access it. (Adding a single character—Scrapbook File1—is enough of an alteration.) Back in *MacPaint*, you'll have an empty Scrapbook that you can again fill with another set of figures. When you need the pictures in a specific Scrapbook, just rename it "Scrapbook File." You can copy the various Scrapbooks to another disk to store them until needed.

That's about all there is to it. Now that you're an old hand at all this stuff, you're probably wondering what all the fuss was about in the beginning! 

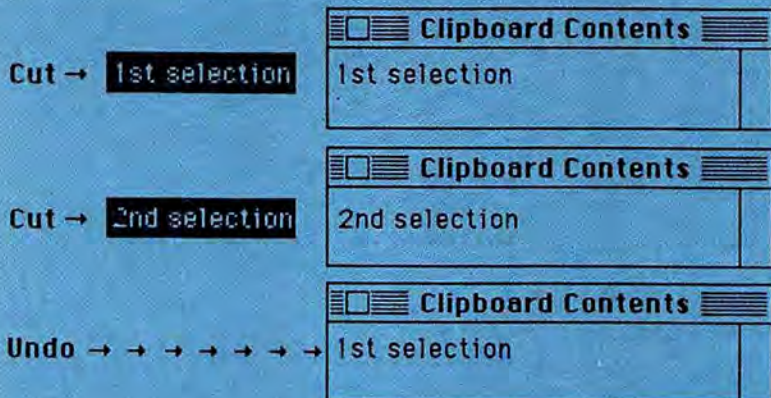


Sometimes the Scrapbook can't display the entire picture, but the whole picture is stored. Pasting in the Scrapbook adds a page on top of the one currently showing.



No matter how text is formatted, when pasted into the Note Pad, it gets converted to plain 12-point Geneva.

CLIPBOARD UNDO



The Clipboard holds only one item of information at a time. When you cut or copy something new, it replaces the Clipboard contents.

Sometimes the former contents of the Clipboard are gone forever, but in many applications, Undoing also restores Clipboard contents.

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2

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City, town or part of city, State, and ZIP code
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MACINTOSH PLUS



The new keyboard has a slightly revised layout. Most obvious is the full numeric keypad at the right side. The only Enter key on the board is at the bottom right of this section. Less obvious, but equally important changes, are the four cursor keys at the bottom right corner of the regular section, the wider Option key at the lower left, a new, enlarged Return key and the new location for the $\text{I} \rightarrow \text{O}$ key, next to the spacebar. This is a keyboard sure to provoke controversy.

An 800K external drive. It's lower and deeper than the 400K external drives, and has a distinctly different sound when operating. Plugs into the same port, though.



(continued from page 40)
does not have to return to disk to get the information. As you move from application to application, routines seen repeatedly are dumped into the cache, which is set from a new Control Panel desk accessory. The RAM cache can be turned off completely, or set in increments from 32K up to 784K. RAM caching can double launch and quit speed over several uses.

The Control Panel DA has been redesigned so that the sections that determine such things as double-click speed and key repeating speed are clearer. In addition, the System is now informed that AppleTalk is connected or disconnected from the Control Panel, not from the Choose Printer desk accessory. Choose Printer has evolved into a generic Chooser to recognize the Mac Plus' new ports and added flexibility. And Key Caps now displays all the System fonts so you can actually see what letters and special characters are available within any font, and what they look like.

Macintosh Plus will be shipped with the long awaited, double-sided internal disk drive. The new drive can store up to 800K of informa-

THE ROAD TO MAC PLUS

For those of us who have Macintoshes and want a Plus, Apple has provided a complete upgrade path. Recognizing that people may only want (or can afford) a portion of the new system, the road has several levels.

The first level is an upgrade kit that replaces the current 400K internal disk drive with the new 800K drive on 128K or 512K Macs. Apple's new 128K ROM is included with this kit, which retails for \$299. The kit will only be available from and installed by certified Apple dealers. The goal of this kit is to eventually bring all Mac owners up to a minimum system of 512K RAM (although this kit doesn't include any RAM), the 800K internal drive, and the new 128K ROM.

The disk drive kit will be installed in Macs that have taken advantage of third party RAM upgrades at no additional cost. However, there may be compatibility problems, and it is

possible that the new System won't recognize all of your extra RAM.

The second level, the Mac Plus digital (logic) board kit, is a bit more radical. This upgrade involves swapping out your existing board for a new Mac Plus board and replacing the back case section of the Mac case with one that is correctly cut for the new connectors. The Mac Plus board kit, again dealer installed, will cost \$599 for 512K owners and \$799 for 128K owners.

The logic board kit will also be available to users with third-party memory upgrades, but the price will be \$799 regardless of how much memory your system currently has. Apple has not fully tested the new board with third-party upgrades, so they cannot guarantee it will work with modified Macs.

Owners of HyperDrives and other internal drives may have to give up their internal drives until their manufacturers can modify them, as the

SIMMs on the new board take up some of the space now used by the internal drives. GCC (makers of the HyperDrive) and other manufacturers have announced that solutions (usually involving a swap) are being worked on and should be available very soon.

The third and final upgrade level is the Macintosh Plus keyboard kit, which lists for \$129. The complete price, then, to make a Macintosh into a Mac Plus is \$1,227 if you start with a 128K Mac or a third-party memory upgrade, and \$1027 if you start with a 512K Mac with all Apple memory. The upgrade kits should be available soon after the Mac Plus ship date of January 23rd.

Users can buy the disk drive kit (upgrade level 1) alone, but because the logic board expects to find an 800K internal drive and the 128K ROM, the logic board kit cannot be purchased without the disk drive kit.

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MACINTOSH PLUS



The Mac Plus' external changes are concentrated at the bottom of the back of the case. The row of external connectors has been radically changed. Starting from the left in this photo, you'll find the external audio jack (it used to be on the other end), the mouse connector, the external drive connector (for 400K, 800K and some hard drives, including the HD-20), the SCSI (or scuzzy) port and the two Mini-8 connectors for the printer and the modem.

tion, compared to 400K on current Mac drives. Apple says the new drive is 100% media compatible with the current 400K drives, so all existing disks can be read and written to as usual. Disk access is twice as fast on the new drives, so users can realize as much as a 30% increase in overall speed of operation. (The full increase will not be seen because the transmission speed from the disk to the System remains the same.) An external 800K drive for use either with the Mac Plus or 128K/512K Macs will ship at the same time, at a price of \$499.

The keyboard of the Mac Plus is a clear sign that Apple has responded to user demand. Many Mac owners have felt frustrated by a lack of a numeric keypad. Not having a keypad significantly slows down data entry in spreadsheets, statistical packages and other number crunching applications, especially if you are used to standard keypads. Of course you can add a separate keypad on the Mac, but it is a bit cumbersome. The Mac Plus keyboard incorporates a full numeric keypad to the right of the existing set of keys, but adds only about 3 inches to the overall width of the system.

The Mac Plus keyboard also includes four cursor control keys that allow movement within applications from the keyboard instead of with the mouse. While these keys are not intended to replace the mouse, there

are times when cursor movement from the keyboard can speed up data and text entry within an application. The cursor keys are recognized by spreadsheets and many other applications, although they are not functional on the desktop.

The final major difference between the Mac Plus and the standard Mac is the inclusion of a new port. The Small Computer Systems Interface (SCSI, or "scuzzy" interface, as it is frequently called) is an industry standard used for hard disks and other peripherals that require high transmission speed. Up to seven devices can be daisy chained to the SCSI, opening up the Mac Plus for significant enhancement. In an early meeting with the press, Apple showed an AST Colossus 70-megabyte hard disk with 60-megabyte streaming tape backup running off the Mac's SCSI port. The beauty of SCSI is that it requires no changes to existing software. You simply need a driver for the particular peripheral to be used. Because it is an industry standard, the use of SCSI opens the Mac Plus to a variety of high-powered peripherals designed for other computer systems. In fact, it is the same interface often found in IBM PCs, opening the Mac Plus to a wide range of IBM peripherals.

The inclusion of the SCSI port obviously necessitates a change in the back of the Mac Plus. The row of connectors at the bottom has an entirely new look. The mouse port remains the same as does the external drive connector, which can be used for 400K or 800K floppy drives or the HD-20 hard drive. The SCSI connector is a standard D-type connector, similar to the one on the present Mac. This one is a bit bigger, having 25 pins. (The external drive port has 19 pins.) New serial ports (for the printer and phone) replace the Mac's 9-pin D-type connectors with mini-8 connectors similar to those found on the ImageWriter II. The two new connectors take up about as much space as one of the old connectors. Apple wants to standardize its interfaces and hardware whenever possible across product lines, and the use of the mini-8 connector is a step in that direction.

WHAT TO DO

Macintosh Plus is a significant improvement, and reflects the kind of market understanding many hoped to see after Apple's reorganization. Although the Mac Plus still does not have slots, Apple still plans to develop its future products along two design paths: "compact" or closed, like the Macintosh and the Apple IIc, and "expandable" like the Apple IIe. You can expect additional significant product announcements from both design paths over the next three to eighteen months.

The Mac Plus, with its greatly enhanced speed and capabilities, will be attractive to business users who have so far resisted the Mac. It will also be attractive to current users who need its power.

The upgrade path Apple has provided is very reasonable and all Mac owners should take advantage of at least the first level (128K ROM and double-sided internal drive). The price is right for the benefits you'll get. Whether you go further depends on your needs and your pocketbook. But no matter what you do, you'll have a great computer. ☐

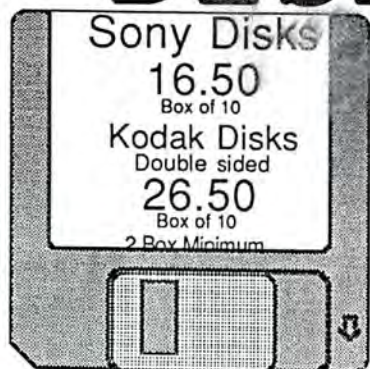
PLUS THE LASERWRITER PLUS

In addition to the Macintosh Plus, Apple announced an enhanced LaserWriter, the LaserWriter Plus, on January 16th. This machine, designed to maintain Apple's dominant position in the desktop publishing market, has 1 megabyte of ROM, compared to 512K on the standard LaserWriter. The expanded ROM houses seven new font families, for a total of eleven.

There is also a new driver for the LaserWriter Plus which is faster than before. The driver supports the 128K Mac (finally) and downloadable fonts. A full typesetting array of downloadable fonts will be available from Adobe Systems over the next several months.

The price of the LaserWriter Plus is \$6798, compared to \$5999 for the LaserWriter which will continue to ship. Existing LaserWriters can be upgraded for the difference, \$799.

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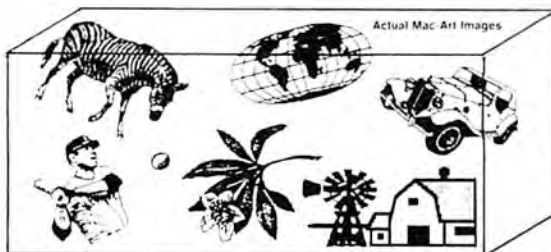
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OH, SAY CAN YOU C?

THE C PROGRAMMING LANGUAGE has rapidly become the most popular development environment for the Macintosh. In a recent survey of its Certified Developers, Apple was surprised to learn that these programmers preferred C over Pascal, Apple's development language of choice and the heart of its Lisa Workshop development system. As a result of these findings, Apple has since included a C compiler in its Lisa Workshop package and has announced plans to produce a native C compiler for the Macintosh itself.

The reasons for C's popularity among Macintosh developers are many. For one thing, C has become the language of choice for many—if not most—of the developers of software running on other micros. IBM

The first article in our series tells you how to make your Mac talk.

programmers, for example, can choose from among 20 different C compilers and a fabulous assortment of aftermarket utilities supporting C programming. Most of the current crop of Macintosh developers came from these other environments and so it's no surprise that they want C on their Macs.

In this series of articles we'll present some examples of programming the Macintosh using the C language.

We'll examine many of the Mac's better known Toolbox calls, of course, but we'll also look at some of the lesser known routines and show examples of how each can be accessed from C to give your programs a professional, individual look.

The programming examples in this series were compiled using *Aztec C* from Manx Software Systems (version 1.06g). That doesn't mean that you should or must use that product. There are several good products available (see the box *ABC* . . .). The comments in the programming examples will indicate where other compilers will require other syntax.

This series is not an introduction to C for beginners. There are lots of good books and the tutorials includ-

by Bob Perez



OH SAY CAN YOU C!

ed with most packages will get you started. We're going to take you to a higher level of proficiency. You'll need at least an intermediate familiarity with C and a basic understanding of the elements involved in writing a Macintosh application.

A copy of *Inside Macintosh* is highly recommended and is virtually required if you're going to be doing any amount of serious development. The definitive specification of the C language is contained in Kernighan

and Ritchie's book, *The C Programming Language*.

Traditionally, C has placed a high emphasis on the notion of machine independence. Virtually every C compiler is delivered with a complete set of standardized, UNIX-style I/O (input/output) functions designed internally to operate on a particular host machine. In this fashion, programs utilizing these standardized I/O functions in their source code will often compile and run without modification on any computer which also uses the standardized functions.

We will not rely heavily on UNIX-style I/O for several reasons. First, the notion of portability from one



MacinTalk

The *MacinTalk* file appears on the desktop as another System file.

machine to another made much more sense when the only difference between one machine's screen I/O and another's was the particular codes used to generate the character display. The idea of porting a Macintosh application over to an IBM PC, on the other hand, is quite a bit more involved. This is true not only because of the tremendous difference

A, B, C, . . .

Aztec C, Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. (201) 780-4004, (800) 221-0440.

Aztec C is a very complete, professional system offering full access to all ROM calls, as well as a complete interface to most of the routines specified in *Inside Macintosh* as "Not in ROM." Uses a very non-Macish interface, more like a UNIX front end. This offends Mac purists, but results in lightning fast compile and file manipulation times. Produces compact, fast executing code. No licensing fees. Not copy protected.

Mac C, Consulair Corporation, 140 Campo Drive, Portola Valley, CA 94025. (415) 322-2757, (415) 851-3272.

Mac C is a professional compiler used by many programmers. Utilizes the Mac interface and is compatible with Apple's MDS system (the compiler's author wrote MDS). Supports many of the C "enhancements," like structure passing, enum types, etc. Produces reasonably fast, compact code. Lacks many of the "Not in ROM" routines described in *Inside Macintosh*. No licensing fees. Not copy protected.

Megamax C, Megamax, Inc., P.O. Box 851521, Richardson, TX 75085-1521. (214) 987-4931.

A bargain-priced compiler supporting most of the features of the above compilers. Uses standard Macintosh interface. Produces fast, compact code, but uses strange linkage conventions, making some operations (such as segmenting) difficult. No licensing fees. Not copy protected.

LISTING 1

```
/*
 * Sample program illustrating use of MacinTalk
 * speech synthesizer using Aztec C (modifications
 * required for use with other compilers)
 */

#include <event.h>
#include <macintosh.h>
#include <memory.h>
#include <packages.h>
#include <dialog.h>
#include <control.h>
#include <pb.h>
#include <init.h>
#include <syserr.h>

SpeechHandle theSpeech;
Handle spOut;

main()
{
    SpeechErr err;
    char *something;

    /*
     * Standard sequence to initialize all managers,
     * clear event queue
     */
    InitGraf(&thePort);
    InitWindows();
    InitFonts();
    InitMenus();
    TEInit();
    InitDialogs(0L);
    FlushEvents(everyEvent, 0);

    /*
     * Allocate the spOut handle. Don't need to assign
     * it any size now, Reader() will dynamically size
     * it as needed. Then open the sound driver with
     * default parameters and check for errors.
     */
    spOut = NewHandle(0L);
    if ((err = SpeechOn("", &theSpeech)) != noErr)
    {
        /*
         * Couldn't open the speech driver for some reason.
         * Here you'd put some error handling code, a dialog
         * box telling the user, for example.
         */
        return;
    }
}
```


in screen display technology, but also because the structure of a Macintosh application is rather unique in the programming universe.

There's another sort of portability to keep in mind. You may come across some bit of source code for the Mac written by one of the many Pascal programmers. It's highly unlikely that such code is going to contain any reference to UNIX-style I/O. Likewise, Pascal programmers reading your C source in order to translate a routine into Pascal are going to be lost when they come across UNIX-style I/O.

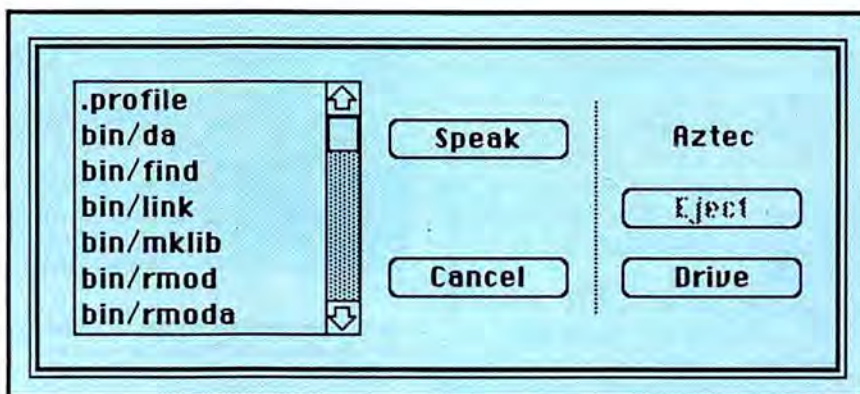
Having these thoughts in mind, we'll go about building our examples by writing our own functions and calling the IM routines as needed whether we're dealing with QuickDraw or any other type of I/O.

SO LET'S HEAR IT

This month's topic is *MacinTalk*, Apple's software-only speech synthesizer. There isn't too much information generally or easily available about *MacinTalk*, as very little has been done with it by programmers and next to nothing has been written about it. The *MacinTalk* file itself was shipped to developers in May 1985 and looks like a typical system file, bearing the familiar small-Mac icon. You can obtain *MacinTalk* from most users' groups, including some of the on-line groups like CompuServe's MAUG or Delphi's ICONtact.

The example program in Listing 1 is a bare-bones illustration of how to use *MacinTalk* within your own programs. Note that in a real application you'd want to do more error checking than we've done here.

We start by initializing all the managers in the normal fashion, and then open up the sound driver contained within *MacinTalk*. *MacinTalk* does a fairly good job of translating most common English phrases into audible speech, but needs a little help now and then. Recognizing this, its creators allowed for the notion of an "exception file." Exception files are tables of instructions on how to pronounce certain words and are created with the developer's tool, *ExceptionEdit*.



The MFS Standard File Package dialog box, as altered by the program in Listing 1. Note that the "Open" button has been changed.

MORE LISTING 1

```

/*
 * Some introductory messages
 */
something = "Hello. This is your Macintosh speaking.";
say(something);
something = "This program takes a text file and speaks the text.";
say(something);
something = "Choose a text file to read. Then, sit back and listen.";
say(something);
something = "Now, click the mouse to continue. Enjoy!";
say(something);
pause();

go_do_it();

/*
 * Fallen out of loop, so say goodbye, release
 * memory turn sound off.
 */
something = "Good Bye for now.";
say(something);
DisposeHandle(spOut);
SpeechOff(theSpeech);

} /* end of main() */

/*
 * This function is called by the Dialog Manager,
 * so it has to be callable from Pascal. Aztec C
 * takes care of this with the 'pascal' keyword.
 */
pascal int speakproc(itemNo, theDialog)
int itemNo;
DialogPtr theDialog;
{
    int type;
    Handle item;
    Rect box;

    if (itemNo == -1) {
        GetDItem(theDialog, 1, &type, &item, &box);
        /*
         * Note the Aztec convention of \P before a
         * Pascal string. For other compilers, use a
         * C to Pascal string function.
         */
        SetCTitle((ControlHandle)item, "\PSpeak");
    }
    return itemNo;
}

```


OH SAY CAN YOU C!

If *MacinTalk* is using an exception file, it will check the tables to see if the current text being processed requires any special instructions. Naturally, this constant reference to exception file tables takes time and you're allowed to use *MacinTalk* without the benefit of an exception file. To do this, simply call *SpeechOn* with a null string as the first argument, as we've done here.

The *MacinTalk* file actually contains several functions, one of which is *Reader()*. *Reader()* converts English text into the phonemes that *MacinTalk* requires for speech synthesis. You could actually bypass *Reader()* and instead feed the *MacinTalk* () function direct phoneme input, assuming you knew the correct phoneme syntax.

The *say()* function in our example shows you one method of turning English text into speech on your Macintosh. The input string is first passed to *Reader()*, which translates the text into phonemes and sets up the *spOut* handle to point to the phoneme string. The *MacinTalk* () function takes the *spOut* handle and outputs speech. Note the arguments that each function expects.

The *pause()* function is a simple little function that you can include in your libraries for use in any program. All it does is pause the program until there's a mouse click.

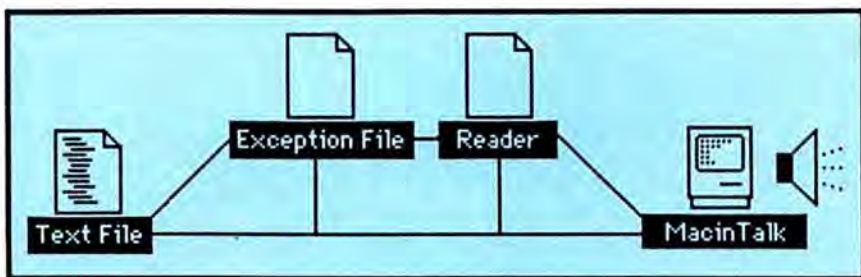
The *go-do-it()* function takes care of most of the program's work. When the user returns from *go-do-it()* the program terminates with a goodbye message and some cleanup.

We've used the Standard File Package to present the familiar dialog box that allows the user to select a given file. Note how we've passed the file type 'TEXT' to the *SFGetFile* routine. We could add other file types by simply referring to them as additional elements of the *mylist[]* array. For example, the statement

```
mylist[1] = 'WORD';
```

causes files of type WORD to be displayed along with TEXT files.

You've probably noticed programs that display this file-selector dialog box using strangely named buttons in place of the usual "Open," etc. There's an undocumented trick that allows you to



Text passes optionally through an Exception File and/or Reader, then is transformed by *MacinTalk* into speech on the Macintosh speaker.

change the name of any of these buttons. The sixth argument to *SFGetFile* is *dlghook* and is usually left alone with a NIL value. It can be used instead to point to a function

that you've written and if so, *SFGetFile* will call it. Apparently, some time before the dialog box is drawn *SFGetFile* passes a -1 to the *dlghook* function. As best as can be

YET MORE LISTING 1

```
/* end of speakproc() */

/*
 * This is where all the action takes place. Sets up the
 * loop for continuous file reading. When user clicks
 * "Cancel" button, it simply returns to main().
 */
go_do_it()
{
    Point here;
    SFReply myreply;
    SFTypeList mylist;
    short fileref, err, howmany;
    char text[256];

    here.v = 88;
    here.h = 75;

    /*
     * Define the file types for the SFGetFile
     * routine to display.
     */
    mylist[0] = 'TEXT';

    while (TRUE) {
        SFGetFile(pass(here), 0L, 0L, 1, mylist, speakproc, &myreply);
        if (myreply.good) {
            FSOpen(myreply.fName, myreply.vRefNum, &fileref);
            do {
                err = readline(fileref, &howmany, text);
                text[howmany] = '\0';
                say(text);
            } while (err != eofErr);
            FSClose(fileref);
        } else
            return;
    } /* end of while(true) loop */
} /* end of go_do_it() */

/*
 * The function say() merely vocalizes the string
 * pointed to by "anything."
 */
say(anything)
char *anything;
{
    long len;
```


determined (not everything about the Mac is documented!), this is done as a last-minute warning to the programmer to change anything desired before the dialog box is drawn.

Take a look at the `speakproc()` function to see how this trick is used to change the "Open" button to read "Speak." Note that `SFGetFile` expects the `dlghook` function to be written in Pascal, so make sure to use the correct stack linkage. With *Aztec C* it's a simple matter of putting the keyword "pascal" before the function definition. If you're using an-

RELEVANT READING

Various authors, *Inside Macintosh*. Published for Apple Computer, Inc. by Addison-Wesley. Three volumes, 1986.—The official documentation for all of the Macintosh Toolbox and Operating System routines.

Chernicoff, Stephen, *Macintosh Revealed*. Hayden Book Company, 1985.—This two-volume set by one of the principal authors of *Inside Macintosh* is a somewhat more accessible version of the Apple document. Although it's oriented toward Pascal programmers, its treatment of virtually all of Macintosh Toolbox is worthwhile reading for anyone learning to program the Macintosh.

Kernighan, Brian W. and Dennis M. Ritchie, *The C Programming Language*. Prentice-Hall, 1978.—The definitive statement of the C language. A must for any C programmer.

Plum, Thomas and Jim Brodie, *Efficient C*. Plum-Hall, Inc., 1985.—This book, by one of America's leading authorities on the C language, examines efficiencies in the use of C. Text is machine-independent and useful for optimizing your C code.

Takatsuka, Jim, Fred Huxham and David Burnard, *Using the Macintosh Toolbox with C*. Sybex, 1986.—This 558-page work is basically a rehash of *Inside Macintosh*, with little specifically applicable to C. Contains many useful code examples, however. Uses Consulair C as its environment.

MacUser

COMING NEXT ISSUE

FEATURES THAT HELP YOU GET THE MOST FROM YOUR MAC

—**The Software Strip**, by Steven Bobker, tells you all you need to know about Cauzin Systems' revolutionary new software distribution concept.

—**The Star-Struck Mac**, by Robb Aley Allan, is a field guide to astronomy programs on the Mac. Must reading for comet watchers.

—**A Relative Bargain**, by Michael D. Wesley, introduces you to one of the new relational databases. This one is easy, powerful, has good spreadsheeting ability and, best of all, is cheap.

—**Are Two Heads Better Than One?** They sure can be! Our review of *ods/Consultant*, by Joost Romeu, tells you how to get the most from this problem-solving tool.

—**Bread and Butter Budgeting**, by Bonnie Walker, shows you how to get a handle on your personal finances using *The Home Accountant*.

Plus:

—Neil Shapiro on building **Designer Battles** for *The Ancient Art of War*. Learn how to play your favorite battle on your Mac.

—Tracie Forman Hines reveals lots of game-winning techniques, some above board, some not, in **The Cheat Sheet**.

—Our C series, by Bob Perez, continues. This month you learn how to use speech in your programs, next month he'll show how to use the Mac's musical ability. Contains a source code listing loaded with useful routines.

—A new regular column, the **Tip Sheet**, tells you lots of things that make your Mac a more useful tool.

And, as always, our columnists will get your attention. Look for:

Our **Devil's Advocate**, John C. Dvorak, on the most amazing Macintosh, and a special message for all our readers.

Neil Shapiro's **Editor's Desktop** looks at the Mac and the way people looked at the original Apple II, and urges a return to the values of those times.

In **The Macintosh Boundary**, Doug Clapp, tells how to become a famous computer columnist.

The **West Coast Report**, by Michael D. Wesley, focuses on how software publishing really works in the Silicon Valley.

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OH SAY CAN YOU C!

other compiler, check your documentation on how to write Pascal-callable routines.

Finally, the `readline()` function is used to read in the text for input to the speech routines. We've used the standard File Manager routines as documented in *Inside Macintosh*. A careful reading of that section of *Inside Macintosh* yields a seldom-used method of reading from text files. Known as the newline mode, this type of file reading will continue to read in characters until a newline character is reached, or until the count value is reached, whichever occurs first. You can define the newline character as any ASCII character of your choice, although a carriage

return (hex \$0D) is most often used.

Unfortunately, this mode isn't available with the high-level calls documented in *Inside Macintosh*, and can only be used when calling the low-level routines. Setting up parameter blocks for each file system call can amount to more work than you'd prefer, though, so we've provided a function that acts just as `FSRead` does in *Inside Macintosh*, except that the read will conclude at the first instance of a carriage return in the text. You can compile this function and add it to your libraries for use in other programs.

Next month, we'll continue our look at programming the Mac in C with some new examples. ☺

THE END OF LISTING 1

```
len = (long)strlen(anything);
Reader(theSpeech, anything, len, spOut);
MacinTalk(theSpeech, spOut);

) /* end of say() */

/*
 * The function readline() reads from the file whose
 * refNum is ref, and reads a line of text into the
 * buffer pointed to by buffPtr. The function assumes
 * that the file is open. Returns the File Manager
 * error code for the read.
 */
short readline(ref, count, buffPtr)
short ref;
short *count;
char *buffPtr;
{
    ParamBlkPtr pb;
    short err;

    /*
     * Set up the parameter block for the low-level read.
     */
    pb = NewPtr((long)sizeof(struct ParamBlkRec));
    if ((err = MemError()) != noErr)
        return err;
    pb->u.iop.ioRefNum = ref;
    pb->u.iop.ioReqCount = 255;
    pb->u.iop.ioPosMode = 0x0D80 | fsAtMark;
    pb->u.iop.ioBuffer = buffPtr;
    pb->u.iop.ioPosOffset = 0L;

    err = PBRead(pb, FALSE);
    *count = (short)pb->u.iop.ioActCount;
    DisposPtr(pb);
    return err;
} /* end of readline() */

/*
 * The pause function is a simple convenience that
 * waits for a mouseclick.
 */
pause()
{
    while (!Button());
    FlushEvents(mDownMask + mUpMask, 0);
}
```


MEANINGFUL RELATIONSHIPS

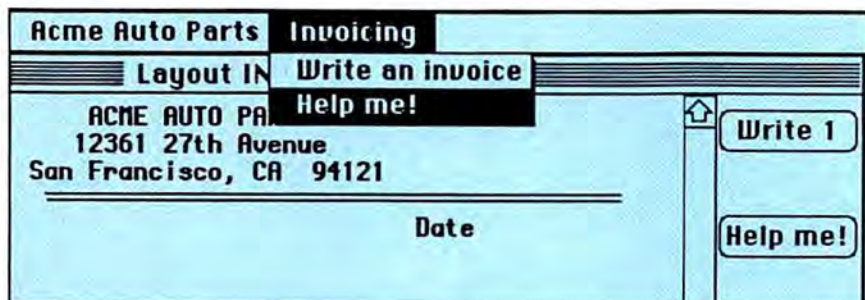


Fig. 6: Selecting the Help Me! command will trigger a sequence that summons a help screen.

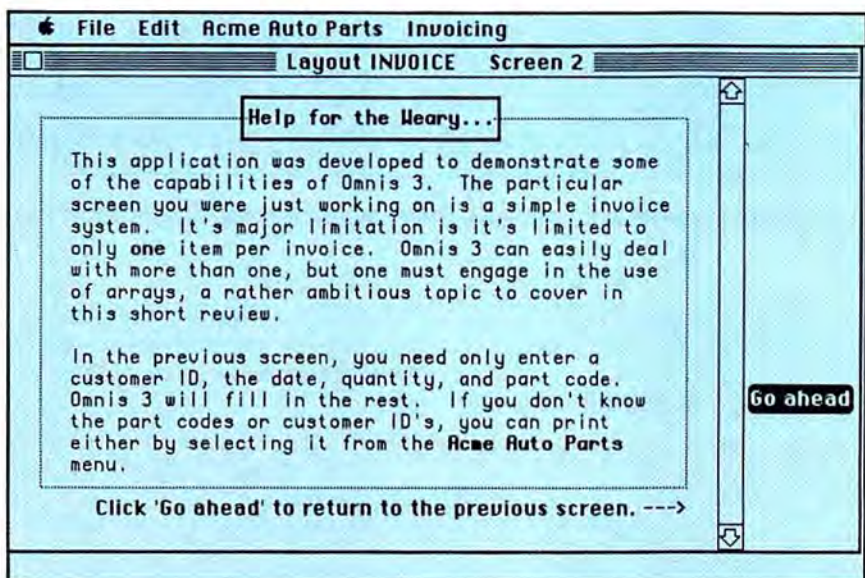


Fig. 7: This is the help screen summoned through the Help Me! command in the Invoicing menu.

(continued from page 46)

ming languages, Omnis 3's "editor" requires virtually no typing. Each command is selected from a group of available commands with a click of the mouse button. Then the individual variations of that command are displayed so you can choose the exact "flavor" you need.

Let's say Acme Auto Parts asked for a "help" facility in their application, with a menu selection, as well as an on-screen button, to access "help." We have built the help screen as the second (#2) of the 12 screens in the "customer" entry layout. The sequence simply has to say "Goto Screen 2," then return to Screen 1 when the user signals he or she is finished.

Once the entry layouts for customers and parts are completed, the entry layout for the invoices file can be built. This layout is significant in

that it will draw from both other files. We want the system to accept a customer ID, and to enter that customer's information on the invoice. This can be accomplished using the Auto Find type for the field. Auto Find is a field from a file other than the main one. When the user enters data in this field, Omnis 3 finds the proper record in the appropriate file, and makes all the fields available to this entry layout. This field type can also be used for the part code, causing Omnis 3 to return that part's price and description. These fields cannot be changed, but they can be viewed and used in calculations.

The user needs only to enter data for customer ID, date, quantity purchased, and part code; the Auto Find fields will fill in the rest of the information. The invoice number is a sequence type field (not the same as the command sequences). This

type is simply the record number for the current record.

After the user has entered the data, three things still need to be done. The program must determine if there is sufficient inventory to supply the order, update the inventory records and update the customer's balance. The parts and customer records are in memory because of the Auto Find fields, so you can test their fields and make changes to them as well. The actual sequence is shown in Figure 9.

As can be seen, this is a fairly English-like language. The language is rich in error condition testing, can track up to 60 temporary fields (variables), work with arrays and can call subroutines (other sequences). Its only limitation (similar to BASIC) is its lack of parameter passing. This is not a serious liability, since most operations can be accomplished without this feature; parameter passing just leads to more readable, structured programming.

Omnis 3 contains a complete selection of mathematical and character operators. The character functions are very useful in extracting parts of input from a user, such as the first four letters of a last name, or the area code from a phone number. The math is quite capable, allowing interest rate calculations along with most standard functions.

PUTTING IT TO PAPER

Our project requires printouts of each of the three files: parts, customers and invoices. In order to print reports with Omnis 3, you must first build a report format. Report formats are similar to entry layouts, except that report formats cannot call sequences by themselves. The reports are equally flexible though, allowing multicolumn printing for mailing labels, many levels of subtotals and grouping of fields, page headers and footers and support for the LaserWriter. Omnis 3 can also print form letters from saved text files.

Notice in Figure 10 that fields from all three files are used. This is done without any special programming. Omnis 3 automatically maintains record pointers for you, illus-

MEANINGFUL RELATIONSHIPS

trating one major advantage of a hierarchical database over traditional relational systems. With a regular relational database, you would usually need to do a Find operation at report time to update the record pointers. *Omnis 3* remembers the exact record pointed to by each of the Auto Find fields, and can access them directly when constructing reports.

The only real limitations of the reports in *Omnis 3* are marginal support of fonts, and no support of graphics. In a program of this magnitude, some graphics capability on printouts should certainly have been included. Also, fonts are supported on printout, but only one font per report is allowed, and the page formatting is sometimes not accurate when using proportional fonts.

These two limitations with fonts are scheduled to be fixed in a revised version, but that was not yet available at press time. The solution, meanwhile, is to print in Monaco (or Courier on the LaserWriter), and

Fig. 8: The Data entry screen for the invoice file. *Omnis 3* will generate most of the information here by itself.

use character graphics (such as underscores and slashes) instead of drawing lines.

Reports can be sent to the screen,

a printer or a disk file. The disk file capability is essential when using *Omnis 3* to communicate with other software.

Clear: Main File Connected files # fields from 1 to 2

Redraw screen

Prepare for Insert Enter data []

If Flag False

Quit Sequence

End If

Calculate TRANSAMT as TRANSUM*PARTPRC

If PARTINV>=TRANSUM

Redraw screen

Calculate PARTINV as PARTINV-TRANSUM

Calculate CURRBAL as CURRBAL-TRANSAMT

Update files

Else

OK message Bell [Sorry, there aren't enough parts in inventory for this transaction]

Delete

Clear: Main file Connected files Other files #

fields from 1 to 60

Prepare for insert

End If

Clear the screen

Stop if user clicks CANCEL

Calculate invoice amount

Test if there are parts available

If yes then:

Recalculate the inventory

Recalculate customer balance

Write updated files to disk

If insufficient parts display alert box

Box message

Erase input from disk

...and erase data from the screen

Fig. 9: A complete sequence file. The comments to the right of the listing explain what each line will do when the sequence is called.

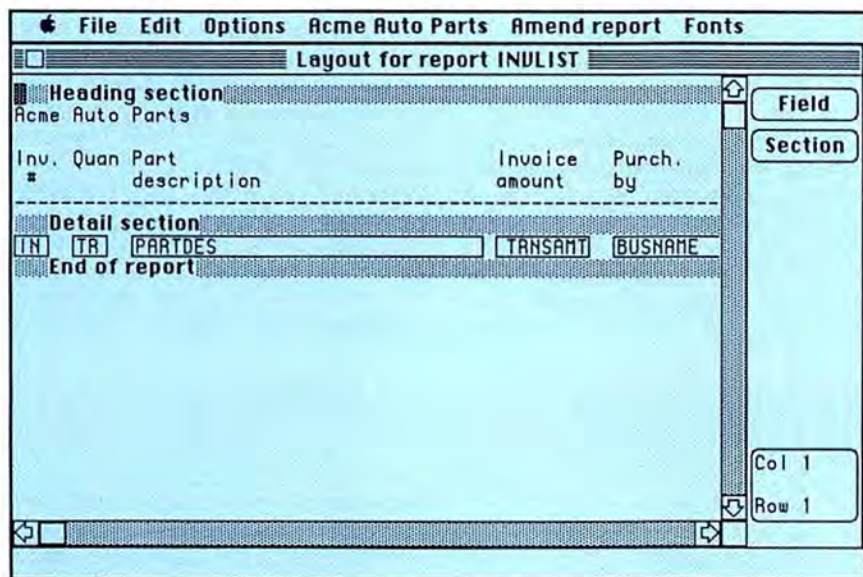


Fig. 10: The report screen. This format will produce a detailed report listing transactions in the Invoice file.

Overall, however, the reporting is very flexible. There is certainly the capability of closely matching any printed form or invoice, and printing meaningful reports with attractive page formatting.

The system ordered by Acme Auto Parts is now in place.

THE SECURITY GUARD

Aside from the standard abilities of *Omnibus 3*, the program also has many advanced features. One of these is password security. *Omnibus 3* allows up to eight levels of password security to be assigned in a library. This feature can restrict use of the

Options menu, which contains the commands used to modify file formats, entry layouts and report formats. Each security level can be given varying access to this menu, including no access. Users can also be selectively locked out of any screens of an entry layout, or denied access to any custom menus or sequences. Very tight controls can be put in place to prevent unauthorized users from getting into places they don't belong. This is an advanced concept for a microcomputer program, and is well-implemented here.

Related to password security is the ability to lock a library. Typically, a

completed *Omnibus 3* application will be used by nonprogrammers, and may rarely require modifications. A command in *Omnibus 3* will permanently lock a library and prevent anyone from ever modifying it, even its creator.

Needless to say, this is a drastic measure, but a simple backup before locking the library will save a lot of problems later on should modifications be required. The user is sufficiently warned before this command is executed, so accidents should be rare.

A unique capability of *Omnibus 3* is a special version compatible with networks. *Omnibus 3* currently supports OmniTalk and OmniNet from Corvus, as well as AppleTalk. If used on a file server, in addition to password lockouts the program is smart enough to prevent more than one user from accessing the same record simultaneously. This could be a disaster, and it's where most database managers fall apart on a network.

Of interest to developers, *Omnibus 3* is available in three different versions: the normal retail product, the multiuser version and a run-time system. The run-time system is a fully functional *Omnibus 3* which is simply missing the Options menu, so it can only run predesigned applications, not modify them in any way. It is significantly less expensive than the retail product.

IT'S ALL RELATIVE

Omnibus 3 is a very impressive performer. It requires a substantial investment in time, so a casual user may be intimidated by its magnitude. However, it makes no sacrifices for the sake of power. While many programs in its league are confusing and difficult to set up and run, *Omnibus 3*'s user interface is friendly, intuitive and true to the Mac.

And the program is powerful—powerful enough to serve Acme Auto parts, and probably powerful enough to run your business well. With its ease of use, multiuser capability, linked files and security features, *Omnibus 3* is a good choice for people who'd rather do business than do business applications. ☐

OMNIBUS 3: REPORT CARD

Overall Rating: ●●●●

Follows Mac Interface: ●●●●
Printed Documentation: ●●●
On-Screen Help: None
Performance: ●●●●
Support: ●●●●
Consumer Value: ●●●●

Comments: Powerful applications generator and database management system.

Best Features: Blazing speed and ease of application development.

Worst Features: Lack of on-

screen help and reference section in the manual; inability to fully use fonts and graphics in reports.

List Price: Single-user: \$495; Multiuser: \$990 (2-5 users); Run-time \$500 (5 copies). Requires 512K and second disk drive. Hard disk highly recommended. AppleTalk and LaserWriter compatible.

Published by Blyth Software, 2929 Campus Drive, San Mateo, CA 94403. (415) 571-0222.

THE SOURCEBOOK ON SOURCEBOOKS

by Michael D. Wesley

Is it possible to assemble a definitive book of Macintosh resources with new products appearing fast and furiously and the market changing almost daily? The answer is probably "yes," because several good examples have been published recently. Perhaps the more salient question: Is it worth the \$15 to

\$25 cover price to buy such a book when much of its content will almost certainly be out of date in several months? The answer is probably "yes" to this one as well, and the three books examined here definitely deserve consideration. MacBook, The Complete Macintosh Sourcebook, and The Book of Macintosh Software are all guidebooks for Mac products, but there the similarity ends. Each has a unique approach, style, format and focus.



THE BOOK OF MACINTOSH SOFTWARE

by McCroskey, Mellin and Ritz. \$19.95
Arrays, The Book Division, 6711 Valjean
Ave., Van Nuys, CA 91406. 541 pp.

The Book of Macintosh Software is a collection of in-depth reviews of Macintosh programs. Although there is a short hardware survey at the back, The Book is primarily focused on software. Its style is more formal and detailed than either of the other two books, with heavy emphasis on features and performance.

The Book is divided into six sections and multiple subsections. Each section has its own introduction that defines and describes the category. Many subsections of the largest category, Productivity, have their own introductions.

Reviews are usually two to three pages long, occasionally longer, and include screen dumps of the program in action. Although the reviews were written by a number of different people, they follow the same format. Each starts with a general description of the program, followed by a detailed look at features, performance and documentation, and concludes with an overall evaluation and recommendation.

Each product is also graded (A,B,C,D,F) according to a standard set of criteria using the following grade card:

Overall Rating
Ease of Use
Documentation
Reliability
Error Handling
Value for Money

Although an occasional D appears in the body of some report cards, none is given an overall rating of less than a C, even though some of the programs reviewed fall well below the average. The company name and the price and size (in K or kilobytes) of the program are listed above the report card. Below it are one to five little Macintoshes. Although it is not immediately clear, the Macs represent an evaluation of how true a program is to the Macintosh interface. Icons at the bottom of the first page of each review indicate what equipment is necessary and whether the program is copy-protected.

The use of standard evaluation criteria and report cards is very valuable. However, since the reviews were written by different people, the writing style varies from review to review. Some are very personal, first-person reviews, and these may be followed by a very technical and precise review of another product in the same category. This makes it somewhat difficult to compare two or three spreadsheets, for example. The writers are all

well-versed in their areas, though, so reviews are largely accurate and well written. They can serve as a good resource when someone is preparing to buy a particular product, or wants to know what graphics programs are available and how they stack up.

The Book of Macintosh Software has two basic flaws. The first is cosmetic. Although The Book is typeset rather than LaserWritten, most of the screen dumps were generated on an ImageWriter. The result is that many are blurred or smudged, with heavily shaded areas bumping up against the normal gray desktop and obscuring the image. Many are difficult to read and some are impossible. Pick up a copy of the book and compare the screen dump for Habadeh to one of the few screen dumps that were obviously done on a LaserWriter (such as The Home Accountant). The difference is staggering. Much of The Book was undoubtedly assembled before the LaserWriter was available, but it is still a shame that it has such poor images.

The second flaw is really a quibble, but a serious one. Company addresses and phone numbers are not listed in the product reviews. They can be found in a complete index at the back of the book, but it would have been much more convenient to list them in both places.



THE COMPLETE MACINTOSH SOURCEBOOK

by Doug Clapp and Pat Ryall. \$24.95
from Info Books, PO Box 1018, Santa
Monica, CA 90406. 378 pp.

The Complete Macintosh Sourcebook is a listing of hundreds of products in every conceivable category. The authors make clear at the beginning of the book that the listings are just descriptions, not

evaluative reviews. This admonition is sometimes a fib (some products are "highly recommended," and sometimes the reader is warned to stay away), but it is essentially accurate.

What The Complete Macintosh Sourcebook does is assemble a huge amount of very useful information in one place. Doug Clapp and Pat Ryall have a

style similar to Arthur Naiman's. Their text is slightly more formal than that found in MacBook, but at the same time The Sourcebook is conversational in tone and laced with dry humor. Mr. Clapp is well known for this style and it is effective, as can be seen in the following discussion of public domain software: "The final source is friends. With over

300,000 Macintoshes now sold, you must know somebody else with a Macintosh. Hit 'em up. But 'copyable' isn't synonymous with public domain."

The *Sourcebook* is divided into six main sections, 23 chapters, and a multitude of subsections. Each chapter is marked with a gray tab for quick access. Specific product listings can be found very quickly, either through the thorough index, or by scanning the section that seems appropriate. Categorizing software and other products is often very difficult because some categories overlap, and many products are difficult to label. Clapp and Ryall have taken great pains in defining their categories so things are usually easy to find. And to avoid confusion when there is overlap, some product reviews, like those of *MacDraft* and *HyperDrive*, appear in more than one place.

The product descriptions vary con-

siderably. Some are long and detailed, while others are very short. In some cases, this is because of a difference in the depth and complexity of the program being considered. The reviews of desktop publishing programs, *PageMaker*, *MacPublisher*, and (*Ready SetGo*) are longer than those of some simple games, for example. But as the authors mention in their introduction, there were instances when they had very little or no time to spend with a product and could only recount information from press releases.

Most of the product reviews include a screen dump of the software in action, or a photograph of hardware items. The font and clip-art sections show examples of many of the fonts and designs available on commercial disks.

All the product listings include the name, address and telephone number of the publisher. The *Sourcebook* contains

several very useful indexes, including a listing of user groups, a directory of software available from CompuServe's MAUG databases, and an incredibly complete and valuable listing of all the companies whose products are mentioned, where they are located and how they can be reached. The *Complete Macintosh Sourcebook*, like *MacBook*, was produced on a LaserWriter. Unlike *MacBook*, The *Sourcebook* is not a book that would be read through in one or two or three, or any number of sittings. It is a reference book that would sit very near the Mac and be used often for quick reference. For this reason, the type is not as much of a concern. Because the amount, quality and accessibility of the information is outstanding, owners will find themselves turning to it constantly. Some things will be out of date quickly, but even so, The *Sourcebook* is an indispensable tool for Mac owners.



MACBOOK

by Arthur Naiman. \$14.95 from Hayden Book Company, 10 Mulholland Drive, Hasbrouck Heights, NJ 07604. 318 pp.

MacBook has an unfortunate subtitle: "The Indispensable Guide to Macintosh Hardware and Software." This suggests a book filled primarily with product reviews and listings, which would indeed be very valuable, but it doesn't describe *MacBook*. Although *MacBook* does include many product reviews, they are not its main focus.

MacBook is really a guide to getting the most out of a Macintosh. It was written and constructed in a very relaxed, personal and conversational style. It almost seems to be rambling at times, but on inspection it is clear that the style is deliberate, and *MacBook* was carefully crafted by an experienced writer. The result is a book that reads well and quickly, with an amusing combination of fact, opinion, humor and practical common sense. For example, when discussing the issue of filing disks safely away in file boxes, Mr. Naiman writes: "I've heard that children's shoe boxes make great disk files. Naturally, they'll only be the right size if your kid is a certain age. Just measure the kid's foot from side to side: if it's about 3-1/2", you're in business. (No, wait a minute... it might be even easier just to measure the box. What an insight!)"

MacBook is divided into 20 chapters that cover everything from the philosophy behind the Macintosh to basic

operations to specific applications. In between there are chapters on carrying cases, hard disks and font manipulation. Several reference cards in the back of the book offer hints, tips and shortcuts. There are also detailed examples of font styles and sizes, and special characters that can be accessed within different fonts.

The text of *MacBook* is sometimes marked with an icon in the margin that indicates when an item is important and potentially hazardous, or particularly useful, or when specific features of programs are very good or very bad. There is even an icon for gossip and trivia. The icons are fun to look at and often helpful.

In the applications and hardware chapters, Mr. Naiman includes excellent advice in the form of a checklist on what to look for before buying a product. For instance, he mentions that a good spelling checker program should let you see words in context and add your own words to the program's dictionary.

As enjoyable as *MacBook* is to read, it does have a few flaws. Mr. Naiman's personal writing style is very enjoyable, but remember that his opinions are his opinions. In some cases, he even prefaces a comment with the phrase: "If you want my opinion..." While Mr. Naiman's opinions are based on extensive experience, well thought out and often on target, they are also very subjective.

A more serious problem is that much

of the material is already outdated. Some of the problems Mr. Naiman tackles have already been corrected in updated versions of *MacWrite*, (he examines version 2.2, not 4.5), the *Finder* and *Font Mover*. A number of products that Mr. Naiman looks at are no longer available, (*TK!Solver*, for instance), and many more have come out that he was unable to mention. This problem is unavoidable in a book of this type, but nevertheless, it is a problem.

Finally, *MacBook* was produced entirely on a LaserWriter. Although the quality of LaserWriter type is excellent, it falls well below that of the normal typeset material readers are used to seeing. (The resolution of the LaserWriter is 300 dots per inch, while professional typesetting equipment has a resolution of 1000 to 2000 dots per inch.) Although the difference may not be immediately noticeable to anyone not accustomed to inspecting type, it can be felt after an hour or two of reading. The eye has to strain much harder to read the lower density type. It would have been better simply to do all the preliminary work on a LaserWriter, but typeset the final product.

MacBook is primarily aimed at the reader who has not yet purchased a Mac but is interested in one, or has just bought a Mac and wants to know how to get the most out of it. It will probably be a book that will be read through quickly, then used off and on afterward as a quick resource for specific items. □

TIP SHEET

Know a way to get something done easily? More importantly, want to be rich and famous? Share your tips with *The Rest of Us* by sending them in to *MacUser Tips*, 25 West 39th Street, New York, NY 10018. Each month we'll print the best, most exciting and most unusual hints for any Mac program and pay you \$25 to \$100 for each tip we use, plus we'll print your name and home town in the magazine. Be sure to include your full name and address with all submissions.

GENERAL:

If you don't want to leave the keyboard when you get a dialog box on-screen, press RETURN instead of clicking in the OK box. If you have more than one option in the dialog box, hitting RETURN will execute the highlighted command.

A few programs don't work properly when you press COMMAND-PERIOD to stop printing. If the program also doesn't respond to clicking on the CANCEL button, or if you need to stop immediately (if, for example, the print-out starts winding around the roller), just turn off the ImageWriter's power switch. The Mac will still think it's printing and will continue until it's finished, although the print time will be shorter than usual.

Paging through large Scrapbooks can be excruciatingly slow, especially if you manage to approach the Scrapbook's 256 entry limit. To speed things up a little, make the first Scrapbook screen an index of the later entries. Just create the index in *MacWrite* (doing it in *MacPaint* takes up more disk space) and copy it into the first page of the Scrapbook. Then, all you'll have to do is use the scroll bar to find what you need in a hurry.

When you use the Programmer's Switch on the side of the Mac to reset the system, it doesn't automatically clear all memory and invoke the ROM's self-diagnostic procedure. The only way to start with a completely clean slate is to turn off the power for a few seconds, then switch the Mac back on.

Do a lot of mathematical calculations? There's a faster way to do it than just working the problem out on the calculator desk accessory and then typing it in. If you're typing a mathematical formula into a document, just type it in up to the "=" sign, then choose the COPY option from the Edit menu to copy the equation. Summon the calculator and just choose PASTE from the Edit menu. The calculator will automatically press the right keys and arrive at the answer. Now, select COPY again, close the calculator, and click the cursor right after the "=" sign. Choose PASTE and the equation's result appears where you want it. The font used for the result will always be Geneva, so you may have to change its font.

MACPAINT:

Want your *MacPaint* image to have a shadow? Try selecting the drawing with the marquee. While holding down the SHIFT key, select TRACE EDGES from the Edit Menu.

Change the font size of text entered in *MacPaint* by pressing the COMMAND and arrow keys (< and >).

There's yet another good use for the SHIFT key in *MacPaint*. Since holding it down constrains movement,

make perfectly straight lines by holding SHIFT and moving up/down or left/right. This key works with the FatBits pencil, the paint brush, and the hand.

When using the lasso, it isn't necessary to complete the loop to lasso an object. *MacPaint* automatically completes the lasso in a straight line back to the point where it started as soon as the mouse button is released.

Retain the original alignment of a *MacPaint* text line while changing fonts (or font styles) by hitting the ENTER key. This retains the original text, including the line's starting point, but lets you select any of the font options for any text that will follow what's already there. One note here—you won't be able to backspace past the point where you pressed the ENTER key.

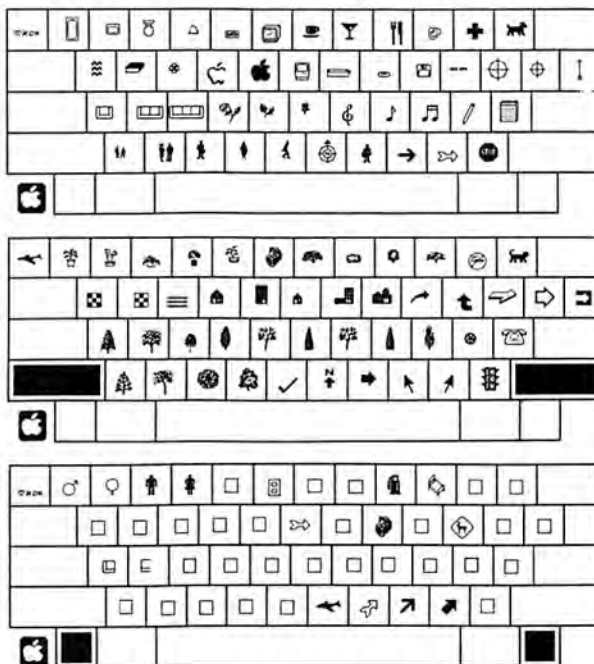
Erase large or oddly-shaped areas in *MacPaint* with the lasso or the selection rectangle. Select the area by either outlining it with the rectangle, or for unusual shapes, draw around the object with the lasso. Then, backspace.

SWITCHER:

Don't automatically choose the ALWAYS CONVERT CLIPBOARD option when working with *Switcher*. It slows down the operation of the program. Hold down the OPTION key while switching to convert the Clipboard easily and comparatively quickly.

MACWRITE:

Create an em-dash by typing SHIFT, OPTION and the hyphen keys at the same time.



If you do a lot of work with the Taleisin font, photocopy this index to all its key combinations and leave it next to your workspace.

BY DAN COCHRAN

ANSWERS FROM THE MAC TEAM

Got a Mac problem? Something that you'd like explained? Something you can't find the answer for anywhere else? Apple's Dan Cochran will answer your questions every month in this space. When the questions are too tough for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Dan care of MacUser, 25 West 39th Street, New York, NY 10018. Dan will read all of your questions, but, unfortunately, he may not be able to answer individual queries. Watch this space for the pick of each month's Q & A crop.

What's the best and safest way to back up an entire diskette? Drag the disk icon to another disk icon or select all the files and copy them? Doesn't the former perform a block copy and the latter copy each file individually? *Steven Haddy*
Los Angeles, CA

The Finder never performs any block



copy procedures, regardless of the method you choose to copy files. Files are always copied individually. One way to back up all the files on a diskette is to select every file and drag them to a blank, initialized diskette. The other way is to simply drag the icon of the source diskette to the icon of the destination diskette. The only difference between these two procedures is that in the latter the volume name and desktop file used by the finder are copied along with the files.

Some applications may also use invisible files, either as form of copy protection or to spare you the sight of a file you really don't need to know about. Invisible files won't get copied unless you use the second procedure described above and that's another reason why I recommend the diskette-to-diskette procedure for most backup purposes.

I'm writing an application for the Macintosh. Is there any way I can be sure that it will work with the new file system?

Steve Creaker
Long Beach, CA

[Answer by Jim Friedlander of Apple Technical Support.]

Yes, your application can and should be File System independent. Your programs should not only be able to access files on other volumes, but also files that are in other directories. Accomplishing this is not difficult—most applications that were written for the Macintosh File System (MFS) work correctly under the new Hierarchical File System (HFS). If you find that your application does not run under HFS, here are five things you should check:

1. Are you using the Standard File calls (SFGGetFile, SFPutFile, SFPGetFile and SFPPutFile) exactly as described in *Inside Macintosh*? This is very important to ensure that your application will run correctly under HFS. HFS uses a new Standard File that allows the user to select files not in the root (or desktop level) directory. This increased functionality was implemented without changing Standard File's external specification—the only difference is that SFReply.vRefNum can now be a WRefNum. Please note that using Standard File's dialog hook and filter procs or adding controls of your own will not cause compatibility problems with HFS.

Existing applications that use Standard File properly run without modification under HFS. Applications that use their own "standard file" routines are



unable to access directories, limiting access to the files in the root directory.

2. Are you concatenating volume names to file names; that is, using file names of the form "VOLUME:file Name"? Applications that do this do not work correctly with HFS (in fact, they may not even run correctly under MFS). Instead of this format, use a vRefNum to access a volume or directory. While fully qualified pathnames such as "volume:folder 1:folder 2:filename" work, please don't use them. The user would have to type in the full pathname.

3. Are you searching directories for files using a loop such as: "FOR index:= 1 to ioVNumFls DO . . ." where ioVNumFls was returned from a PBGetVInfo call? For example, *MacPaint* uses this technique for its Print Catalog command. Under HFS, ioVNumFls is the total number of files in the default, root and system directories. Instead, get a copy of Technical Note #24 and use the technique shown there; that is, repeated calls to PBGetFInfo using ioFDirIndex until fnfErr is returned.

4. Are you assuming that a vRefNum will actually refer to a volume? A vRefNum can now be a WRefNum. A WRefNum indicates which working directory (folder) a file is in, not which volume the file is on. Don't think of vRefNum as a way to access a volume, but rather as a means of telling the File System where to find a particular file.

5. Are you walking through the VCB queue? You should let us do the walking for you. Using indexed calls to PBGet-

VInfo will allow you to get information about any mounted volume. The reason that you shouldn't walk through the VCB queue is that it changed for HFS and might change in the future. The routines that we supply will correctly access information in the VCB queue.

What's the possibility of an error on a defective floppy propagating unknown through a whole series of backups? That possibility worries me, since it could damage or change data and I wouldn't know about it until it was far too late to fix.

Jean Espinosa
Union City, NJ

The odds of this happening are virtually nil. If your master diskette is defective (for example, media begins to flake off) the Macintosh media error detection routines will most likely recognize the problem and let you know either when you try to mount the defective diskette, or when you attempt to copy files from it. You'd either get a finder message stating that the disk is damaged and can't be read, or saying that some files couldn't be read and were skipped.

Media, like everything else, doesn't last forever. For critical data, I'd employ a backup strategy that involves replacing your master and backup diskette with new, certified media every six months.



A friend sent me a disk with a *MacDraw* document. It prints fine on an *ImageWriter* but when I print it on the *LaserWriter* white vertical lines run through the printed image. These lines don't appear when I view the image on the screen. My friend created

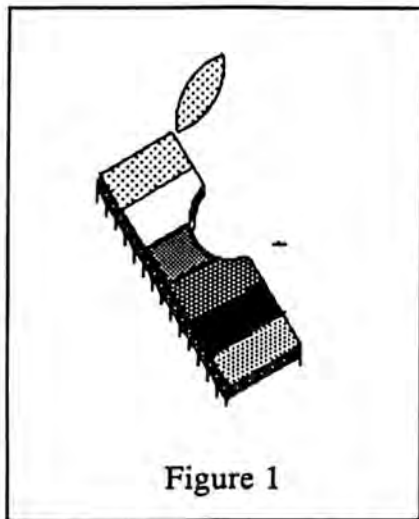


Figure 1

the document in *MacPaint* 1.3 and pasted it into *MacDraw* 1.7. Can you explain this or offer any workarounds?

Jane Willows
Reno, NV

Without actually seeing the disk it's hard to say for certain. We do know, however, that a bit-mapped image—such as created in *MacPaint*—will print with the “seam” lines you describe if the image is copied to *MacDraw*, rotated or flipped, and then printed to a *LaserWriter* from *MacDraw*. This is probably a *MacDraw* bug. Figure 1 shows a *MacPaint* image copied to *MacDraw* and printed to the *LaserWriter*. Figure 2 shows the same *MacPaint* image, rotated left, and then printed from *MacDraw*.

The seam lines are obvious.

One workaround would be to rotate the *MacPaint* image to the desired orientation using *T/Maker's Click-Art Effects* in *MacPaint*, before you copy the image to *MacDraw*. If you experiment with the image and can rotate or flip it to its original *MacPaint* orientation, I'll bet the lines will disappear.

My friend told me that the *ImageWriter II* is capable of running self-test samples in all three printing modes—draft, standard and high. How can I do this?

Alan McGill
Dallas, TX

Easy.

(1) Turn the printer off, hold down the Form Feed button, and turn the printer back on. This will start the “draft mode” self-test.

(2) While the printer's printing, deselect the printer by pushing the LineFeed

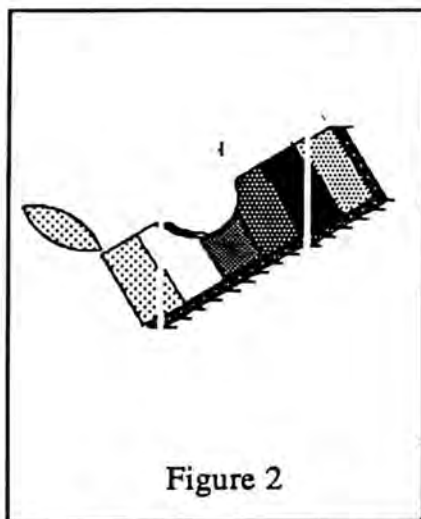


Figure 2

button. Then push the Print Quality button to select a new mode and reselect the printer by pushing the LineFeed button again. When the printhead reaches the left margin and begins a new line you'll see “standard” quality print.

(3) To preview “high” quality repeat step 2.

[Thanks to the folks in Apple Technical Communications for this bit of *ImageWriter II* trivia.]

I've just purchased a new *LaserWriter* and the output isn't nearly as dark as it should be. I've even tried a different toner cartridge, but that hasn't helped. Please advise.

Janet Anderson
Hot Springs, AR

This is a fairly common situation that's easily corrected. First, you need to make sure that the toner material is loose and evenly distributed throughout the cartridge. If you gently rock the cartridge back and forth on its axis several times the toner will disperse properly. When you move or ship the *LaserWriter*, it's also a good idea to remove the cartridge from the machine and keep it horizontal until you reinstall it.

After you've distributed the toner in the cartridge and reinstalled it, run off 20 or 30 black pages from *MacPaint* or *MacDraw*. This will “break in” the drum on a new machine.

There's also a contrast control on the back panel that should, however, have been set properly at the factory. If your output still isn't acceptable, contact your dealer. It's possible that the amount of electrical charge placed on the image drum isn't enough to attract a sufficient quantity of toner. ☐

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MINIFINDERS

Ever go into a computer store and wish you had someone you could trust tell you what the various programs and accessories do and how well they do it? These MiniFinders detail items chosen by the editors. Each one has been rated from 1 to 5 mice and there are even a few bomb icons scattered here and there. Red names indicate this month's additions. And, since so many of you have asked, we've included a code that indicates whether or not a program is copy protected. CP means copy protected, NCP means not copy protected, NCPE means a non-copy-protected version is available at extra cost and CP? means we don't know the status. If you do, write us at MiniFinders, c/o MacUser, 25 West 39th St., New York, NY 10018. Next time you have to find products you can count on, count on MacUser!

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INTEGRATED SOFTWARE

Crunch is an icon-driven relational spreadsheet that features versatile charting and database capabilities. Strong financial logic, date and mathematical functions. Spreadsheets can be linked. The manual is clear and concisely written. Macros are not supported. \$195. Paladin Software Corporation, 2895 Zanker Rd., San Jose, CA 95134. CP

Ensemble lets users create a database of words, pictures, and/or numbers; graph data; generate custom forms and link files for applications such as mail merge. Can perform calculations and math functions on data. Ensemble is compatible with MacWrite and MacPaint files, and any program using cut and paste operations. Capacity limited by RAM and disk size. Easy to use, general database with graphics. \$299.95. Hayden Software Corporation, 600 Suffolk St., Lowell, MA 01854. CP

Excel is THE power spreadsheet. Of the Mac, of the world. Has 256-column by 16,384-row capability. Features include a powerful easy to use macro function (with a recorder to make creation simple) and elaborate charting facilities. Can link multiple spreadsheets. 512K Mac and external drive required. \$395. Microsoft Corporation, 10700 Northup Way, Bellevue, WA 98009. CP

Jazz provides well integrated modules for word processing, graphs, worksheets, databases and communications. Each of the modules is substantial. HotView, where data placed in any



module automatically updates all other documents that use that data, is best feature. Jazz provides adequate coverage of most data and communications needs of small businesses. Requires 512K, external drive. \$595. Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142. CP

OverVUE is a power-packed relational database that has extensive sorting, summarizing and report generation capacity. Has macros and a charting function. Good manual. The program tries to anticipate every need conceivable in manipulating data. It can exchange files with a very wide variety of other programs (including IBM software). Be sure to get version 2.0. \$295. ProVUE Development Corp., 222 22nd St., Huntington Beach, CA 92648. CP

Quartet, an integrated program that works on a 128K Mac, is built around a powerful spreadsheet with a full range of functions. It can also be used as a database and provides good quality charts from spreadsheet data. Documentation is adequate but not too well organized. \$199. Haba Systems, Inc., 15154 Stagg St., Van Nuys, CA 91405. CP

BUSINESS ACCOUNTING

Accountant's Choice is a powerful system built around a relational database, with functions accessed through menus. Standard reports are provided but most can be customized. Multiple journals allowed. Number of accounts determined by disk space. General Ledger can stand alone or integrate with other modules, not yet available. Requires 512K, printer and external drive. \$695. Sierra Information Systems, Inc., Suite 210, 10201 Torre Ave., Cupertino, CA 95014. CP?

AMS General Ledger is a Ledger with five preset journals: Cash Disbursements, Receipts, General, Sales, and Purchases. Other modules are planned. Account ranges are preset. Menus and data entry are very straightforward. Flexible summary reports are built-in, but customer and vendor information is very minimal. \$295. Applied Micro Solutions, PO Box 860, Fort Collins, CO 80522. CP?

Gallery Finance is a one-write system with General Ledger, Cash Disbursements, Payables and Receivables in a single package. Additional modules to be added. Data entered in a journal is automatically posted to appropriate record card. Excellent manual includes tutorial on basic accounting principles. Requires 512K, printer and external drive. \$795. Micromax Systems, 6868 Nancy Ridge Dr., San Diego, CA 92121. CP?

Hardisk is a complex integrated hard disk system (General Ledger, Receivables, Payables, Inventory, Payroll and Job Cost modules) that does not use Mac interface. Fully menu driven. Manual detailed but complicated, with a few extra pages that make it Mac-specific. Flexible reporting, statements and account numbering; huge numbers of accounts, transactions, profit centers and detailed financial analysis. Requires hard disk and printer. \$695 per module. Great Plains Software, Box 9739, Fargo, ND 58109. CP?

MacOneWrite Cash Disbursements is a simple, one-write check writing system. Limited functionality, but does allow some detailed information. Menus are clear and easy to follow, but check printing can be confusing. 512K and printer required. \$245. Sierra, Coarsegold, CA 93614. CP?

Palantir is a simple, inexpensive accounting system for a 128K, one drive Macintosh. Manual is clear and concise; program uses icons for common operations; menus are clear and detailed, with most operations easy to find and use. Flexible report formatting and a customized chart of accounts. But program is written in Microsoft BASIC so it is very slow. Nice design but the speed is intolerable. Requires Microsoft BASIC, printer. \$145 per module. Palantir Software, 12777 Jones Road, Suite 100, Houston, TX 77070. CP?

Rags to Riches integrated accounting modules (General Ledger and Accounts Receivable) use Mac interface to the hilt.



MINIFINDERS



Information entered in one window automatically transfers. Menu commands all have command keystrokes, as can accounts. No detailed or flexible reporting. Very easy to use, although it can be confusing to operate with several windows on-screen. Requires 512K and printer. \$295 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. CP?

Strictly Business General Ledger features clear, well-outlined set-up procedures and operations. Very flexible, with a custom chart of accounts; user-defined journals; up to 99 profit centers per company with up to 100 departments each; and customized reports. Program spools to printer and allows for printing of multiple documents. Built-in *Smooth-Talker* gives verbal error messages or entries, if desired. Other modules planned. Requires 512K, printer and external drive. \$395. Future Design Software, 13681 Williamette Dr., Westminster, CA 92683. CP?

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program suitable for personal, home and small-business use. Easy to use, with a good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. Reports can be generated and either viewed on-screen or printed. Has simple graphing and charting facilities. \$149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP

Electric Checkbook does exactly what the name says: keeps a running account of checkbook transactions, balances checkbook to bank statements, tracks bills, and even prints out checks. Provides detailed financial statements, calculates net worth, lists expenses by category, and tracks your personal cash flow. \$79.95. State of the Art, 3191-C Airport Loop, Costa Mesa, CA 92626. CP

Financial Cookbook provides nearly 3 dozen "recipes" to help users figure out financial formulas (i.e., mortgage costs at different percentage rates) by inputting pertinent data. Very user-friendly. \$44.95. Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. CP

Forecast is a tax estimating and what-if program designed to work with and use *Dollars & Sense* files. Straightforward, easy to use program. \$69.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP

The Home Accountant is a complete and easy to use financial system. Data entry is intuitive. All kinds of reports, including charts and checks, are easily generated. Entered data will update all relevant material. \$150. Arrays, 11223 South Hindry Ave., Los Angeles, CA 90045. CP

WilliWriter uses a rule-based system to create wills valid in all states except LA. Simple to use, comes with a complete book on wills. \$39.95. Legisoft/Nolo Press, 950 Parker St., Berkeley, CA 94710. CP?

DATABASES

Business FileVision is a masterpiece of Macintosh programming, the only true graphic database on any micro. Much more powerful than the original, accepts *MacPaint* graphics. \$395. Telos Software Products, 3420 Ocean Park Blvd, Santa Monica, CA 90405. CP

Factfinder is a free-form information organizer (medium-duty database). Users enter data on to factsheets in any manner desired and select keywords. Searches are by name or keyword. Only one factsheet can be open at a time. Be sure to get version 1.1, 1.0 is too slow. Publisher offers free telephone support (800 number). \$149.95. Forethought, Inc., 1973 Landings Dr., Mountain View, CA 94943. NCP

FileMaker is a nonrelational database that combines lots of power with ease of use. Data entry is extremely flexible and all items in all fields are indexed so that multiple criteria searches are both simple and fast. Calculation fields make

the creation of invoices and similar documents a snap. Reports can include graphics and multiple data layouts are easy to construct. \$195. Forethought, Inc., 1973 Landings Dr., Mountain View, CA 94943. NCP

Filevision is a simple database that can change the way you think about data and data organization. Records are based around user created graphics screens. Screens and records can be linked in complex ways. \$195. Telos Software Products, 3420 Ocean Park Boulevard, Santa Monica, CA 90405. CP

1stBase is a small, easy to use database that allows users to join or append files. It is the simplest, most accessible relational database available for the Mac. Supports calculated fields, including statistical summaries such as averages. Integrates with *1stMerge* and *1stPort*. \$195. DeskTop Software, 244 Wall St., Princeton, NJ 08540. CP

Helix is a relational database that makes extensive use of icons. Excels in database setup and forms generation. Setup is made easy by the adherence to the Mac interface. The manual is clear, thorough and well-indexed. Too complicated for most simple database applications, excellent where relational database application is required. Supports multiple windows. Requires a 512K Mac and an external drive, but is slow on that configuration. A hard disk is really required to use *Helix* effectively. \$395. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP

The Housekeeper is a home inventory database. Keeps track of assets for both tax and casualty purposes. Specialized reports are easy. \$59.95. Aegis Development, Inc., Suite 277, 2210 Wilshire Blvd., Santa Monica, CA 90403. NCP

I Know It's Here Somewhere stores information in a simple filing system. Ideal for general household or small business use. File formats are flexible and 31 samples are included. Can cross reference up to five files at a time; perform simple, wild card, or multiple key searches, and print selected items or whole files. \$59.95. Hayden Software, 600 Suffolk St., Lowell, MA 01854. NCP

MacLion is a true relational database program. Can handle all databasing requirements although set up may require outside (consultant) help. Has a built-in programming language (LEO) and can be customized for any application. Reasonably flexible and easy to use once a database is set up. Can handle very large files as well as multiple files. \$379. Computer Software Design, Inc., 1904 Wright Circle, Anaheim, CA 92806. CP

MegaFiler is a simple file manager. Its limited capabilities have been far surpassed by cheaper and easier to use programs. Valuable only in conjunction with *MegaForm*. \$195. Mega-haus Corp., 5703 Oberlin Dr., San Diego, CA 92121. CP

Microsoft File is a flexible data manager. Creates files for a variety of data, including simple graphics. Files are created in simple row/column format, but reports and forms are easily customized by moving field names around on a blank form. Sorting is limited to approximately 5000 records on 128K Mac. Easy to use, well designed and full featured. \$195. Microsoft Corporation, 10700 Northup Way, Bellevue, WA 98004. CP

Omnis 3 is a power database, featuring concurrent multiple file management. Can handle 24 files, 12 at a time, and is fully relational. Allows user to create custom environments including user-defined menus, commands and dialogs. Good report generation capability. Comes in single and multiple user versions. \$495 (single user version). Organizational Software Corporation, 2655 Campus Drive, Suite 150, San Mateo, CA 94403. CP

pfs: File/Report provides two programs on one disk. *File* is a reliable, easy to use text database. Use it to design simple forms, maintain records, and, in concert with *Report*, generate reports in list format or as designed forms. This package was an early entry into the Mac marketplace and more powerful and versatile products are now available. \$175. Software Publishing Corporation, 1901 Landings Drive, Mountain View, CA 94043. CP



Professional Bibliographic System is a database designed for storing and retrieving bibliographies. Predesigned forms for 20 types of entries. Citations automatically formatted with correct punctuation for printing. \$295. Switcher and AppleTalk compatible. Personal Bibliographic Software, Inc., PO Box 4250, Ann Arbor, MI 48106. CP?

NUMBER CRUNCHING

BEAMAC II is for civil engineers. It performs full graphic and numeric analyses of any statically determinate or indeterminate beam. Simple to use, good use of the Mac interface. Money-back guarantee. \$295. Erez Anzel, 5T, 5800 Arlington Ave., Riverdale, NY 10471. NCP

ClickOn Worksheet is a 50-row by 20-column spreadsheet that loads onto any system disk as a desk accessory. Though small in size, it has remarkable capabilities for a desk accessory. It produces line, bar and pie charts and changes in the worksheet automatically reflect in charts. Especially useful with a word processor. \$79.95. T/Maker Company, 2115 Landings Dr., Mountain View, CA 94043. CP?

Multiplan, the first Mac product from someone other than Apple, is beginning to show age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. *Multiplan's* best feature is the ability to link areas of one worksheet to portions of another. \$199.95. Microsoft, 10700 Northup Way, Bellevue, WA 98004. CP

ProAnalysis is a powerful real estate investment analysis program. This program uses the Mac interface as well as any program yet published. Analytic power is combined with report generating so good you have to see it produce an extraordinary product. Requires 512K. \$295. Technalysis Services, 14555 DeBell Rd., Los Altos Hills, CA 94022. CP

StatView is a high-powered statistical calculation package. Easily and efficiently handles all the common statistical techniques and tests and many uncommon ones. Has a user definable area as well. \$199.95. BrainPower, Inc., Suite 250, 24009 Ventura Blvd., Calabasas, CA 91302. CP?

StatWorks is a general-purpose statistics package that is both powerful and easy to use. Handles all standard tests and procedures. Single variable and multivariate statistics are supported. \$125. Cricket Software, 3508 Market St., #206, Philadelphia, PA 19104. CP

GRAPHICS & DESIGN

Animation Toolkit I lets users prepare "film clips" of moving objects which play back at varying speed, like old-fashioned flip books. Drawings are built pixel by pixel in frames, using some of the tools from *MacPaint*. They can be copied and altered easily from frame to frame. Each film clip plays repetitiously as it is being constructed. A limited animation tool, but a lot of fun. \$49.95. Ann Arbor Softworks, 3081/2 S. State St., Ann Arbor, MI 48104. NCP?

Art Grabber with Body Shop is a desk accessory that lets users browse *MacPaint* documents, selecting and copying as they choose. Selections can be larger than screen size. Also included are *MacPaint* documents and templates to allow the creation of people in your art. \$49.95. Hayden Software Company Inc. 600 Suffolk St., Lowell, MA 01853. CP

ClickArt Special Effects is a *MacPaint* enhancement desk accessory. Allows the user to distort, stretch, rotate and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. \$49.95. T/Maker Company, 2115 Landings Drive, Mountain View, CA 94043. NCP

ColorPrint facilitates color printing on the standard ImageWriter. *MacPaint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration and colored ribbon switching. Good results require lots of hard work, but it's cheaper than an ImageWriter II. \$49.95. Esoft Enterprises, PO Box 179, Owasso, OK 74055. NCP

DaVinci Building Blocks features predrawn blocks of brown-stone, garden, and skyscraper portions that can be cut and pasted together to form landscape and architectural drawings. Fun for even non-pro's. \$79.95. Hayden Software Company Inc., 600 Suffolk St., Lowell, MA 01853. CP

DaVinci Commercial Interiors is a professional-level package of layout aids for interior designers and architects. Features predrawn office sections with furnishings included as a font that users install into a System. \$199.95. Hayden Software Company, Inc., 600 Suffolk St., Lowell, MA 01853. CP

Fluent Fonts is a two-disk collection of fonts. Forty-nine different items are included. All install easily in user Systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. \$49.95. Casady, PO Box 223779, Carmel, CA 93922. NCP

Fontastic is the best font editor now available for the Mac. Features a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles (italic, bold, shadow, underline and outline). \$49.95. Altsys Corp., PO Box 865410, Plano, TX 75086. NCP

Icon Switcher changes icons for applications and the documents they generate, permitting you to customize icons for personal work. New icons can be built pixel by pixel in the program or created in *MacPaint* and pasted in. \$19.95. PBI Software, 1155B-H Chess Drive, Foster City, CA 94404. NCP

The Mac Art Dept. is a collection of over 150 graphic images ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. Excellent manual. \$39.95. Simon & Schuster, Computer Software Division, 1230 Avenue of the Americas, New York, NY 10020. NCP

Mac the Knife/Vol. 1: Treasury contains over 500 pieces of clip art in the form of *MacPaint* documents and two new fonts. The art is well organized and mostly high quality. The rulers, for on-screen measurement, and the disk label templates are particularly useful. If you only plan on getting one clip art disk this is a good choice. \$39. Miles Computing, Inc., Suite 212, 7136 Haskell Ave., Van Nuys, CA 91406. NCP

Mac the Knife/Vol. 2: Fonts contains over two dozen new fonts. Some of these (Paris and Stuttgart, for example) are real stunners. If you do a lot of word processing try Paris 9 point (it's a big 9 point) as your text face and use High quality printing. Some fonts have single key fractions (1/2, 1/4). \$49. Miles Computing, Inc., Suite 212, 7136 Haskell Ave., Van Nuys, CA 91406. NCP

Maccessories Professional Type Fonts comes in two flavors: text and headline. Both sets consist of 16 digitized fonts, very similar to commercial typefaces. These extremely clean fonts are among the best available. The Text set comes in sizes ranging from 12 point to 24 point, while the Headline fonts are from 24 point to 72 point. The large fonts have to be seen to be believed; they're really good. Some of the very large (48 and 72 point) fonts will only work a 512K Mac (they take up lots of memory!). \$49.95 Text (1 disk). \$69.95 Headlines (2 disks). Kensington Microware, 251 Park Ave. South, New York, NY 10010. NCP

MacDraft is the step beyond *MacDraw*. This object oriented drafting program is packed with advanced features such as rotation, zooming, auto dimensioning and scales. A professional level product. \$239. Innovative Data Design, Inc., Suite 8, 1975 Willow Pass Rd., Concord, CA 94520. CP

MacDraw is an object-oriented structured graphics program. Can be used to design forms, create presentation materials and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. *MacPaint* documents can be pasted into *MacDraw*, but not manipulated. \$195. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. NCP

MacPaint is the graphics program that started a whole new genre. Still the best freehand graphics tool. Version 1.5 supports



MINIFINDERS



512K Macs and the LaserWriter. Multiple tools, patterns and features too numerous to describe. A work of art for artists. Comes with Macs. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. NCP

MacPublisher is a tool for creating newsletters. Allows multiple page issues. Layout is fairly easy but hard to do precisely. Text must be entered via the keyboard, a serious drawback, and style and font changing ability is limited. Runs on a 128K Mac but is slow; a 512K should be considered a requirement. Printer support, including LaserWriter, is good. Ideal for informal newsletters, not yet a professional tool. \$99.95. Boston Software Publishers, Inc., 19 Ledge Hill Rd., Boston, MA 02132. CP

Magic Slate is a graphics and design program with built-in special effects and custom features. Fun but sometimes difficult to use. Great for pattern design, block and geometric graphics and watercolor-style "washes." Requires 512K. \$99. Devionics, PO Box 2126, Covina, CA 91722. CP?

Microsoft Chart is the standard to be matched in presentation graphics programs. Users can easily create area, bar, column, line, pie, scatter and combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. \$125. Microsoft Corporation, 10700 Northup Way, Bellevue, WA 98009. CP

M.U.D (MacroMind Utility Disk) is a disk of various utilities for *MusicWorks* and *VideoWorks* owners. It also contains *Cheap-Paint* and *Art Grabber+*, two graphics desk accessories that are musts for graphics enthusiasts. Hayden Software, 600 Suffolk St., Lowell, MA 01854. CP?

PageMaker is an advanced layout and makeup program. Can easily create multiple page documents. Output is optimized for LaserWriter. Good documentation. \$495. Aldus Corporation, Suite 400, 616 First Ave., Seattle, WA 98104. CP

QuickPaint is a desk accessory that allows browsing through *MacPaint* documents. Selected portions of documents can be expanded to fill the screen. Disk also includes a wealth of high-quality clip art. \$49.95. EnterSet, Inc., Suite 408, 410 Townsend St., San Francisco, CA 94107. CP

ReadySetGo is a page makeup program for 512K Macs. Users build up pages from blocks of text, graphics and rules. Resizing and scaling of blocks are supported. Each block can be precisely positioned. Text and art may be pasted in from another source or created within the program. Good LaserWriter support. \$125. Manhattan Graphics, 163 Varick St., New York, NY 10013. NCP

Slide Show Magician 1.3 is useful for creating full screen audio-visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization and digitized sound capabilities make this much more powerful than the original. \$59.95. Magnum, 21115 Devonshire St., Suite 337, Chatsworth, CA 91311. CP

Underware Ribbon allows users to create *MacPaint* images and transfer them to cloth, typically to t-shirts. Fairly easy to do, although care is required. The transferred images can be colored using the special pens provided. Set of a ribbon and five colored pens \$24.95. Underware Diversions, Inc., 1550 Winding Way, Belmont, CA 94002. NCP

VideoWorks is a full-featured animation package. Professional quality animations are easily accomplished using the tools provided. Features frame-by-frame and real-time modes. Comes with an art disk of predrawn images and *Art Grabber* (which allows the user to use any part of a *MacPaint* document in *VideoWorks*). Includes many special video and sound effects, excellent manual and many on-disk examples. \$99.95. Hayden Software Company, Inc., 600 Suffolk St., Lowell, MA 01854. CP

COMMUNICATIONS

1stPort is a data transfer program that is more than adequate as a simple terminal emulator. It can handle document formats

including SYLK, DIF, 1stBase and plain ASCII, and has a built-in text editor, making this program easy to use with remote message and electronic mail services. \$95. DeskTop Software Corp., 244 Wall St., Princeton, NJ 08540. CP

InTouch comes with its own communications command language able to do unattended sessions. Supports Xmodem, MacBinary and Kermit. Has a macro key function. Many sample set up documents and command language files provided. \$145. Palantir Software, Suite 100, 12777 Jones Rd., Houston, TX 77070. CP

MacTerminal provides basic telecommunications and terminal emulation for the Mac user. Doesn't have macros nor any sort of auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation—it is superb at those. \$99. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. NCP

Mouse Exchange BBS turns a Mac into an electronic bulletin board system. Allows private electronic mail, public message areas and file distribution. Users can be granted different access levels with password security. External drive or hard disk recommended. \$39.95. Dreams of the Phoenix, Inc., PO Box 10273, Jacksonville, FL 32247. NCP

Red Ryder is a full-featured telecommunications program that supports MacBinary, Xmodem and Kermit. Remote Service Procedures and keyboard macros allow automation of many operations. It is shareware and a real bargain. \$40. The FreeSoft Corp., 10828 Lacklink, St. Louis, MO 63114. NCP

Smartcom II balances power and ease of use. Capable of unattended operation and has a very powerful command language. Supports MacBinary, Xmodem, and Hayes Verification protocols. The large screen buffer can easily be archived both to the printer and to disk. Lacks keyboard macros. \$149. Hayes Microcomputer Products, Inc., 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP

Telescope is the power telecommunicator's terminal program. Can be configured to emulate any terminal and has all the advanced features (except unattended operation). Unfortunately, the documentation does not adequately explain the many features and much of the power will be unavailable to all but the pro's, who can figure it out. \$125. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

VersaTerm features include DEC VT100 and VT52, Tektronix 4014 graphics terminal and Data General DG200 emulation. Supports Xmodem and MacTerminal Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well documented. \$99. Peripherals, Supplies & Computers, Inc., 215 Mt. Penn Ave., Perkiomen, PA 19606. NCP

WORD PROCESSING

EgWord is a *MacWrite* lookalike that allows full Japanese kanji word processing on the Mac. Does a superlative job of making Japanese text-entry as easy as possible, given the difficulties of the language. Great for students of Japanese, may find a place in international business as well. \$300. Counterpoint, PO Box 1685, Cambridge, MA 02138. CP?

1stMerge is a mail-merge program that integrates data files with documents after a blueprint for documents has been designed. Features on-screen help, and the ability to add and search records. Requires *MacWrite*. \$95. DeskTop Software Corp., 244 Wall St., Princeton, NJ 08540. CP

Hayden: Speller checks spelling errors in *MacWrite* and *Word* documents against a dictionary of 20,000 common words and user-created dictionary. Reasonably fast and quite simple to use. Dictionary is small and words cannot be viewed in context while correcting. \$79.95. Hayden Software, 600 Suffolk St., Lowell, MA 01854. NCP?

Just Text is a professional level word processor and page makeup program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. \$195. Knowledge Engineering, GPO Box

2139, New York, NY 10116. NCP

LaserFonts are new fonts designed for the LaserWriter. Users download them to their machines. Very high quality and very simple to use. *Willamette* (in Medium, Light and Extra Light) looks like Avant Garde. *MicroFonts* provides tiny, expanded and condensed versions of the LaserWriter's own fonts. \$29.95 each. Century Software, 2306 Cotner Ave., Los Angeles, CA 90064. NCP

MacSpellRight is a spelling checker, works with *MacWrite* 4.5 (not 2.2!). Allows the user to create custom dictionaries. Works from within *MacWrite*. \$89. Assimilation, Inc., 485 Alberto Way, Los Gatos, CA 95030. NCP?

MacWrite is the basic word processor that comes with the Mac. While it doesn't have every bell and whistle, it is more than adequate for most users. Features of the current version (4.5) include document size limited by disk space, global search and replace, page numbers indicated in the scroll bar and excellent LaserWriter compatibility. Easy to use and well documented. Free, except for consortium students. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. NCP

MegaForms is a well designed forms generator and processor. Forms design is easy. Can use data from *MegaFiler*. The form filling and print functions are slow, possibly too much so for large scale use. \$295. Megahaus Corp., 5703 Oberlin Dr., San Diego, CA 92121. CP

Microsoft Word is a power word processor for the Mac. It has just about every feature your heart could desire. Supports keyboard commands as well as the mouse. Does mail merge and multicolumn text. Integrates with the rest of the Microsoft line. \$195. Microsoft Corporation, 10700 Northup Way, Bellevue, WA 98009. CP

QuickWord is a word processing accessory that adds sophisticated glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. \$49.95. EnterSet, Inc., Suite 408, 410 Townsend St., San Francisco, CA 94107. NCP?

ORGANIZATIONAL TOOLS

MacProject allows a user to plan and track a project from beginning to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. Has a very clear manual. \$125. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. NCP

Micro Planner is a heavy-duty project planner. Excellent, but slow, at the mechanics of project planning. Reports are its weakness. Speed is much improved when a hard disk is used. \$395. Micro Planning Software USA, 235 Montgomery St., #840, San Francisco, CA 94104. CP

ods/Consultant is a program that lets users organize ideas and helps in thinking through and solving problems. Easy to use thanks to extensive use of icons and on-screen help. This program introduces some low-level AI (artificial intelligence) concepts. \$200. Organization Development Software, Inc., Suite 535, 1011 E. Touhy Ave., Des Plaines, IL 60018. CP

ThinkTank 128 is a basic outline processor. The interface is not the standard Mac interface, but is simple to use and efficient. The program is speedy. Printer support is limited, but files can be printed in a draft-style mode. Only for 128K owners; 512K owners should get *ThinkTank* 512. \$145. Living VideoText, Inc., 2432 Charleston Rd., Mountain View, CA 94043. CP

ThinkTank 512 is a very fast and intuitive organizational tool that can handle word processing chores in the midst of structuring a plan or outline. Full keyboard control (without mouse) is possible. Can store and paste graphics into outlines. Slide show features allows high presentations to be created. Good report formatting and printing capability. \$245. Living VideoText, Inc., 2432 Charleston Rd., Mountain View, CA 94043. CP

DESK MANAGERS

Battery Pak is a set of eight handy desk accessories including scientific and RPN calculators, a background text file printer and a 250-page note pad with search and phone dialing capabilities. Comes with an installer and the best manual we've seen in a long time. Be sure to get version 1.1. \$49.95. Batteries Included, 30 Mural St., Richmond Hill, Ontario, L4B 1B5, Canada. NCP

Day Keeper Calendar is the ultimate computerized appointment and note book, the *Day Runner* of computers. Holds a year's worth of information in each calendar document (you can have several). Starting from the basic display of a whole month you can easily see details of days and individual entries of many sorts. If you need a computerized appointment book this is it. \$39.95. Dreams of the Phoenix, Inc., PO Box 10273, Jacksonville, FL 32247. NCP

The Desk Organizer is a free-form desk management system based on card index style files. Has many features including alarms, report generation and calculation. The Meta feature lets the program run along with another application. \$99. Conceptual Instruments, 269 W. Walnut St., Philadelphia, PA 19144. CP?

Front Desk lets small businesses and offices easily keep track of personnel schedules, activities, and payments. The program can keep track of up to 15 employees, functioning as a day-, week-, and month-at-a-glance calendar. Highly recommended for doctors and dentists' offices. Less useful for offices less dependent on the human factor. \$149.95. Layered, Inc., 85 Merrimac St., Boston, MA 02114. CP

MacOffix combines many of the simple and necessary office functions in one easy-to-use package. Features include simple word processing, forms design, form letter production, report generation and filing. Good design nearly makes the manual unnecessary. \$79. Emerging Technology Inc., 4760 Walnut St., Boulder, CO 80301. CP

My Office lets you handle your files and papers in much the same way you did before you got a computer. Now your folders and files are all in the computer and you can easily find anything, print anything, or even print everything. Excellent use of graphic symbols makes this program the easiest to use of its type. \$129.95. DataPak Software, Suite 401, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP

Quickset is a set of five desk management and organizational tools that can be used as desk accessories or applications. Modular design allows users to add only selected items to System disks. Functions include note filer, card filer, calendar, financial and statistical calculators and a file encryptor. \$49.95. EnterSet, Inc., 410 Townsend St., San Francisco, CA 94107. CP

Sidekick is a set of desk organization applications and accessories. Functions include phone dialer and logger, desk accessory terminal, calculator, clock, editor and more. When required resource files are included modules take up a lot of disk space, and are best used with a hard disk. All work well. \$84.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP

UTILITIES

Accessory Pak 1 is a set of useful applications and utilities. *Paint Cutter* alone is worth the price. That program allows users to browse and manipulate full page *MacPaint* documents. \$39.95. Silicon Beach Software, Suite 201, 11212 Dalby Pl., San Diego, CA 92126. NCP

Copy II Mac was one of the first back-up programs available for the Mac. Does efficient sector and bit copies and in its latest version can back up virtually all Mac software. Features graphic displays of copy progress. Comes with *MacTools*, a multiuse utility that can recover many damaged files. \$39.95. Central Point Software, Inc., Suite 100, 9700 S.W. Capitol Highway, Portland, OR 97219. NCP



Disk Ranger is a speedy cataloguing program that doubles as an efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. \$49.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

Dubl-Click Calculator Construction Set lets users design personalized calculators with a variety of standard and special functions. Multiple functions can be attached to a single key. Finished calculators can be saved as installable desk accessories or as clickable applications. \$99. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91321. CP?

Epsstart lets Mac users use most Epson printers. Required, but not included, is a serial printer interface. Data can be sent to the printer via either the printer or the modem port. The documentation is clear. \$45. SoftStyle, Inc., Suite 205, 7192 Kalanianohe Hwy., Honolulu, HI. NCP

Fedit is the best disk editor available for the Mac. The program also includes extremely powerful disk and file repair and recovery facilities. All Mac owners should have this tool on hand for emergencies. It is easy enough to use that everyone can use it. And best of all, it's shareware. \$30. John Mitchell, 939 E. El Camino Real, #122, Sunnyvale, CA 94087. NCP

Jetstart lets Mac users use Hewlett-Packard's tiny, quiet ThinkJet printer with their Macs. Installation is simple and the program works without hitches. Data can be sent to the printer via either the printer or the modem port. \$45. SoftStyle, Inc., Suite 205, 7192 Kalanianohe Hwy., Honolulu, HI. NCP

Laserstart allows use of a Hewlett-Packard LaserJet printer with a Mac. This printer is significantly cheaper than the LaserWriter and has adequate text printing features. It cannot efficiently handle Mac graphics or typefaces. The software is simple and easy to install. It works perfectly. Data can be sent to the printer via either the printer or the modem port. Comes with a cable to connect the Mac and the LaserJet. \$95. SoftStyle, Inc., Suite 205, 7192 Kalanianohe Hwy., Honolulu, HI. NCP

Lock-It allows users password control of all their documents. It works quickly and efficiently to protect confidential material. Unfortunately, it is not perfectly bug free and a failure will cause future lack of access to data. If you absolutely need to protect data and are very careful, you can use *Lock-It*, but the average user should stand clear. \$29. Assimilation, Inc., 485 Alberto Way, Los Gatos, CA 95030.

MacBooster is a disk-cache program that adds a great deal of operating speed to a 512K Mac. It installs easily from its master disk. This program can increase the speed of your 512K Mac by 2 to 3 times. \$50. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. CP

Mac Disk Catalog is a utility that will quickly organize a moderate size disk library. It's easy to use and has powerful reporting and label making features. \$39.95. New Canaan Micro-Code, 136 Beech Rd., New Canaan, CT 06840. CP

MacLabeler lets users instantly index and print labels for all the disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. \$49.95. Ideaform, Inc., PO Box 1540, Fairfield, IA 52556. CP

MacLink lets users transfer data between Macs and PCs. Simple to install and run, high-performance software. Can do special format transfers such as 1-2-3 to *Multiplan* and *WordStar* or *MultiMate* to *MacWrite*. Contains both Mac and PC disks, interface cable is optional. Has Mac and MS-DOS disks. \$125, \$155 with 8-ft interface cable. DataViz, Inc., 16 Winfield St., Norwalk, CT 06855. CP?

MacMate combines RAMdisk and print spooling functions in a compact package. Both parts are efficient, work well and have on-screen help. This is the best product in its category. \$49.95. SMB Development Associates, PO Box 3082, Chatsworth, CA 91311. NCP

Mac Memory Disk creates a RAMdisk on 512K Macs. The RAMdisk's size is user selected up to 316K. Has auto startup and auto file transfer features. Simple to use, on-screen dialogs prompt for all actions. \$29. Assimilation, Inc., 485 Alberto Way, Los Gatos, CA 95030. NCP

MacNosy is a global disassembler. A very advanced user can use this program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going if you have the skill to guide it. The documentation is sparse. For pros only. \$75. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

The Macintosh Reference System consists of the contents of *Inside Macintosh* arranged into a simple database on a disk and a deck of 750 color coded cards that contain the same information. Very useful for programmers and developers. \$99.95. TOM Programs, Suite 34B, 1500 Massachusetts Ave. NW, Washington, DC 20005. NCP

MacTracks allows users to store a series of keystroke and mouse movement operations to any command key. The various controls and index (so that you can see what you already created) reside in the Apple menu as a desk accessory. Documentation is inadequate and behavior is sometimes not what you expect. Invaluable in some places (*Smartcom II* and *Jazz*), it needs some improvement before it gets much use. \$29. Assimilation, Inc., 485 Alberto Way, Los Gatos, CA 95030. NCP

MacZap is a three-part disk and memory utility. It can be used to recover some damaged files and disks, compare disks, analyze disk structure and make back-up copies of most disks. Fairly intimidating due to its enormous power. Has a good manual. \$60. Micro Analyst, Inc., 5802B Gloucester, Austin, TX 78723. NCP

Ncryptor is a simple, safe program that lets users password their files. The same program is used for encoding and decoding. This is the best product in its category. \$39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

PC to MAC and BACK has both Mac and MS-DOS disks. This program easily and efficiently transfers text and other data between PCs and Macs. Fortunately, the documentation is excellent. Does special format transfers such as *WordStar* to *MacWrite*. Includes a cable for direct Mac to PC connections. \$149.95. Dilithium Press, Suite 151, 8285 SW Nimbus, Beaverton, OR 97005. CP?

Quick & Dirty Utilities, Volume One is a disk chock full of the handiest programs you have ever bought. Included are a super disk cataloguer, a desk accessory mover and more. Several desk accessories including a menu bar clock and a terminal are on the disk. "Fileinfo" and "Q&D Filer" are two file management desk accessories that you'll wonder how you got along without. \$39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP

Quick Disk is a RAMdisk utility. Users can create RAMdisks up to 350K on 512K Macs. Works well and has good documentation. \$34. Symmetry Corporation, Suite 103S, 3900 East Camelback Rd., Phoenix, AZ 85018. CP?

Switcher is Andy Hertzfeld's contribution to Mac productivity. This program lets users run several programs at once (up to eight on a 1-megabyte or larger machine). Switching between the programs is near instantaneous. Slick and easy to use; every 512K Mac user should get it. Runs on 512K Macs and larger. \$19.95 from Apple, free from MAUG on CompuServe, from Delphi and included with some third-party applications (e.g., *Excel*). Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. NCP

TurboCharger is a disk-cache program. It works by storing frequently used portions of a disk in a memory buffer and it can dramatically speed up operation (250 to 500% improvements are common). Features include auto-startup. Only works on a 512K Mac but is a must for one. \$95. Nevins Microsystems, 210 Fifth Ave., New York, NY 10010. NCP

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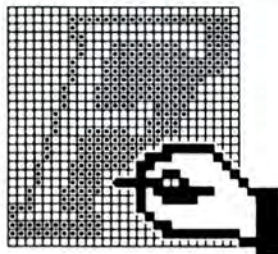
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TurboDownload is a desk accessory designed specifically to increase the speed of Xmodem data transfers from national databases to your Mac. Speed increases range upward from 50% to over 300% at 2400 baud. \$39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

Twelve-C Financial Desk Accessory brings power and functionality of a Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and registers can be viewed while calculator is running. \$39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP

TypeNow is a desk accessory that allows the Mac and ImageWriter to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back or "boilerplate" stored and used as needed. \$39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

XL/Serve converts a Mac XL into a disk and print server. Uses the AppleTalk network and is easily hooked up. Users can partition the Mac XL's hard disk into multiple volumes (read-only for common access and read-write for private access). Runs in the background on the Mac XL, so users can work on all machines in the network. Comes with a backup and restore utility. \$195. Infosphere, 4730 SW Macadam, Portland, OR 97201. NCP

LANGUAGES

Aztec C is a C language program system that will appeal to users with a UNIX background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. Good, solid system. \$199 basic system, can't produce standalone applications; \$299 development system, can produce standalone applications; \$499 commercial system, development system plus utilities and strong technical support by publisher. Manx Software Systems, Inc., PO Box 55, Shrewsbury, NJ 07701. NCP?

ExperlISP is a very buggy, but still incredibly useful, programming language for high-level programmers. The more you use it, the more you'll figure out about it. System crashes are too common for a language this expensive. \$495. Requires 512K and either an external or a hard drive. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperLogo is a version of the popular teaching language, Logo. Features three-dimensional graphics using "bunnies" rather than the usual "turtles." Very speedy, smooth program. Comes with an excellent manual. \$149.95. ExperTelligence, Inc., 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

Hippo-C Level 1 offers a good basic learning environment for newcomers to the C programming language. The program's limits and restrictions are severe and standalone applications cannot be created. A good place to begin the study of C. Has a useful print spooler desk accessory. \$149.95. Hippopotamus Software, Suite 12, 985 University Ave., Los Gatos, CA 95030. CP

MacAsm is a software development system that allows programs to be written in assembly language. Programmers can assemble, edit and test software, and an integrated resource compiler lets independent applications run from their own icons. \$125. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

Mac C is a good, highly Mac-oriented implementation of this popular development language. Latest version (4.0) has assembler and linker built-in. \$375. \$475 with Toolkit and floating point package. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP

MacExpress is a development environment or shell. Programmers use it to save time and effort when developing standalone applications for the Mac. Easy to use for those with a strong technical background. \$50 test drive package, \$495 Mac version, \$745 Mac XL version. ALSoft, Inc., PO Box 927, Spring, TX 77383. NCP

MacForth is an implementation of the popular Forth programming language. Level 1 is a simple, introductory version with limited support of the Mac Toolbox. Excellent tutorial and references sections in the manual. Level 2 supports the Mac Toolbox fully. Level 3 extends the language so that professionals can produce standalone applications. All levels are supported by the publisher via telephone and electronic BBSs (the publisher even has a private SIG on CompuServe). \$149 (Level 1), \$249 (Level 2), \$499 (Level 3). Creative Solutions, Suite 12, 4701 Randolph Rd., Rockville, MD 20852. CP

Mach1 is a multitasking implementation of Forth that allows local variables and text files. Several windows can be up with different operations in each, operating concurrently. Execution is fast. \$99. Requires 512K. Palo Alto Shipping Co., PO Box 7430, Menlo Park, CA 94026. CP?

Macintosh 68000 Development System is a fairly traditional assembly language package. The two-disk set provides an excellent editor (*Edit*), an efficient assembler, a linker, an executive, and a resource compiler called *RMaker*. The files included in this two-disk set have all the basic equates, process definitions, and trap calls. Good documentation includes a copy of the Motorola 68000 handbook. \$195. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. NCP

Macintosh Pascal is Apple Computer's version of this very popular programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. Superb usage of the whole Mac interface makes this the best way to learn Pascal. The documents are mostly references, get one of the tutorial textbooks in your bookstore. \$125. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. CP

Megamax C is an easy to use, full version of C. Has a compiler, linker, disassembler, editor and much more. Good for beginners. Excellent documentation. \$299.95. Megamax, PO Box 851521, Richardson, TX 75085. CP

Microsoft BASIC was the Mac's first programming language. This interpreter (it's not a compiler) now supports the Toolbox and the whole Mac interface can be implemented in your programs. For nonprogrammers there are lots of programs available (in user group libraries and magazines) to run. There have been several versions; be sure to get the latest. \$150. Microsoft Corporation, 10700 Northup Way, Bellevue, WA 98009. CP

Microsoft Logo, from Microsoft's MacLibrary, written by LCSL. An excellent implementation of Logo, taking full advantage of the Mac's user interface. Uses three windows. Turtle looks like a turtle. Screen actions are very precise. Windows can be resized and moved about. \$124.95. Microsoft Corporation, 10700 Northup Way, Bellevue, WA 98004. CP

QUED (Quality Editor for Developers) is the ultimate source code editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. \$65. Paragon Courseware, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP

EDUCATION

A Bill Becomes A Law is a multiple-choice, role-playing adventure in which students try to pass a bill requiring apples in every federally sponsored school lunch. A good insight into political maneuverings on Capitol Hill for junior high and high school students. \$59.95. Queue Intellectual Software, 5 Chapel Hill Dr., Fairfield, CT 06432. CP

ChipWits is a combination game and teaching tool. Players create programs to maneuver robots through a set of eight mazes. The programs are written in *ChipWit's* built-in icon-based programming language (IBOL). IBOL is a nearly perfect introduction to programming for nonprogrammers. \$49.95.

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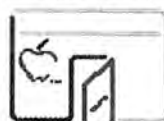
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MINIFINDERS

BrainPower, Inc., 24009 Ventura Blvd., Calabasas, CA 91302. CP

MacChemistry is a two-disk set consisting of a titration program (predetermined compounds, not user modifiable), a periodic table program, *MacNest* (a scrapbook with indexing!), and a disk of *MacPaint* files depicting everything from lab equipment to molecular structures of many solutions and compounds. Although advanced chemistry students will find programs shallow, *MacNest* is of general appeal. \$145. Fortnum Software, 31 W. Sierra Madre Blvd., Sierra Madre, CA 91024. NCP

MacEdge and **MacEdge II** each contain eight reading or math drill programs for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws—they require learning format as well as skill. Exception is Alphabet Train, a clever game with great graphics and sound, poor font definition. Average educational value, can be fun to play. \$49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP?

MacMuscle is a fitness program that lets users generate weekly workout schedules. Features include a detailed chart of the body and its 24 major muscle groups. An animated figure demonstrates the primary exercises. Calculates training pulse rate, which is shown by an animated heart and sound. Limited program that emphasizes weight training. \$89.95. Tech 2000 Software, Inc., 263 Lugonia St., Newport Beach, CA 92663. CP?

MacType offers structured typing instruction. Can teach both standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. \$49.95. Palantir Software, Suite 100, 12777 Jones Rd., Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. \$49.95. Scarborough Systems, Inc., 55 South Broadway, Tarrytown, NY 10591. CP

Mind Prober is a demonstration of a very simple expert-style system. How well do you know your friends? Answer certain statements as either true or false, and the computer prints a 3- to 5-page psychological profile of subject in business, stress, sex and other situations. \$50. Human Edge Software Corp., 2445 Faber Place, Palo Alto, CA 94303. CP?

Nutri-Calc uses a large database of nutritional information. Users can plan good, healthy diets and print out shopping and menu lists. \$79.95. CAMDE Corp., 46 Prince St., Rochester, NY 14607. CP?

PowerMath is an equation solver. Handles problems ranging from the simplest to the extremely complicated. Step-by-step solutions make this a powerful teaching tool. Results can be displayed numerically or graphically. Slow, but potent program. \$99.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. CP

Smoothtalker trains your Mac to say anything you want. Users can program the pitch and tone of each syllable to simulate true speech patterns. Not too useful—but a lot of fun to play with! Latest version includes a female voice. Male and female can be mixed in same document to provide entertainment. \$149.95. First Byte Software, 2845 Temple Ave., Long Beach, CA 90806. CP

Speed Reader II builds skills sequentially to develop faster, more efficient reading and improve retention. Scores kept, and can be graphed. High school level selections included, other levels available on data disks. \$69.95. Davidson & Associates, 3135 Kashiwa St., Torrance, CA 90505. CP?

Starting a New Business is a short tutorial structured as a text game. Players choose one of the three choices displayed on each new screen to pick one of three businesses to start, then try to run it profitably. Mastered in one or two sessions, but worth a look just the same. \$59.95. Queue Intellectual Software, 5 Chapel Hill Dr., Fairfield, CT 06432. CP

Think Fast allows users to improve their recall and recognition abilities. Tests include compare, copy and recall exercises. Users choose the level of difficulty, speed and risk-taking. Has session and summary reports to provide feedback and permanent records. Good for users of all ages. Children will find it fun. \$39. BrainPower, Inc., 24009 Ventura Blvd., Calabasas, CA 91302. CP?

Turbo Turtle is a turtle graphics program primarily designed as a learning tool for children. Uses Logo commands for graphics, but is not a full Logo implementation. Simple to use, good introduction to Logo for young children. \$59.95. Hayden Software, 600 Suffolk St., Lowell, MA 01854. CP?

ENTERTAINMENT

Airborne is classic arcade-style game with "real" sound effects.

The player sits at a gun position on a low rise and defends against an assault from flying enemies. Game noises digitized from actual recorded sounds add to the game. \$34.95. Silicon Beach Software, Suite 201, 11212 Dalby Pl., San Diego, CA 92126. CP

Amazon is an illustrated adventure authored by Michael Crichton.

Unravel the fate of a doomed expedition with the help of Paco the talking parrot. Three difficulty levels, good sentence parser. \$49.95. Telarium, One Kendall Square, Cambridge, MA 02139. CP

The Ancient Art of War gives users a chance to refight some

famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K Mac. \$49.95. Broderbund Software, 17 Paul Dr., San Diego, CA 94903. CP

Balance of Power is the world's first computer peacemake. This

simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. \$54.95. Mindscape, Inc., 3444 Dundee Rd., Northbrook, IL 60022. CP

Baron is the world of real estate, in a financial simulation. Buy and

option properties in five key areas; invest in industrial, residential, or land property; or put cash aside in high-interest accounts. \$59.95. Blue Chip Software, 6740 Eton Ave., Canoga Park, CA 91303. CP

Championship Boxing allows statistical replay involving famous

boxers. Players can modify existing boxers and can create their own fighters. Good sound and graphics. Sierra, PO Box 485, Coarsegold, CA 93614. CP

Comet Halley is a single-purpose, single-minded program. It will

indicate where in the sky users should look to see this pass of Halley's comet. That's it. When the comet is gone you can erase the disk. \$29.95. Great Wave Software, PO Box 5847, Stanford, CA 94305. CP?

Cutthroats casts players in this full-text adventure as a deep-sea

diver, hired by a band of toughs to locate shipwreck treasure. The game is very closed-ended, requiring almost Pavlovian obedience. Multiple endings. \$39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

Cyborg is a text adventure game with an interesting twist. Robot

brain is implanted in concert with yours. It scans, evaluates, and reports, then carries out actions. Word and sentence understanding is very good. Absorbing adventure. \$39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

Deadline is a text adventure in which the player is a detective

called in to investigate what seems like a simple drug overdose. The family lawyer thinks it was really a murder. You have 12 game hours to find the killer! \$49.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

Deja Vu A: Nightmare Comes True is a graphic adventure that

breaks new ground. Innovative use of the Mac interface in truly playable and exciting game. A great introduction to graphic adventure games. \$54.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

DejaVu is an unusually good version of "Concentration." Great

graphics and sound, one- or two-player modes. Improves



concentration painlessly. \$39.95. Rubicon Publishing, 6300 La Calma Dr., Austin, TX 78752. CP

Dinner at Eight is a useful recipe filing system that includes a collection of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales recipes accordingly. \$59.95. Rubicon, Suite 100, 6300 La Calma Dr., Austin, TX 78752. CP

Dragonworld is an illustrated adventure in which the player attempts to save The Last Dragon from the Duke of Darkness. Several on-screen illustrations at once. Outstanding documentation lists all words recognized by the program's sentence parser. \$49.95. Telarium, 1 Kendall Sq., Cambridge, MA 02139. CP

Feathers and Space is an arcade game. Heavy flapping birds assault you and your troops. Protect your camp via a single spaceship with full lateral movement but a barrier halfway up the screen. Very average game. \$34.95. PBI Software, 1155B-H Chess Drive, Foster City, CA 94404. CP

Fokker Triplane is about as near to flying as you can get seated in front of a computer. Very realistic simulation and excellent graphics. Well designed and implemented. \$39.95. PBI Software, 1155B-H Chess Dr., Foster City, CA 94404. CP

Forbidden Quest is a text adventure with pictures. Begins in a spaceship, with you in extreme danger. The game provides several levels of on-line help, from simple hints to actual solutions. The disk is accompanied by five graphic prints, called Artext, of specific scenes with hidden clues. Very playable if a bit mundane. \$44.95. Priority Software, Suite 22, 635 Sanborn Rd., Salinas, CA 93901. CP

Gateway, another Artext game, comes with three full-color prints. You inherit a boring old building from a supposedly rich uncle, eventually learning that the building is a "gateway" to a lost civilization. Both *Forbidden Quest* and *Gateway* have pull-down menus for conditions, inventory and game operations. \$49.95. Priority Software, Suite 22, 635 Sanborn Rd., Salinas, CA 93901. CP

Gato puts players in command of an American submarine in World War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." \$39.95. Spectrum Holobyte, Inc., Suite 325, 1050 Walnut St., Boulder, CO 80302. CP

Gypsy is a computerized, customizable Ouija board. More than just a software package, users get a pasteboard playing surface and a Mouse Mover with 99 ball bearings. \$39.95. Suite 337, Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311. CP

Harrier Strike Mission pits you against a well defended island. You fly an advanced Harrier jumpjet from a carrier offshore. Fair graphics and reasonable flight simulation prove that color isn't necessary in a flight simulator. \$49.95. Miles Computing, 21018 Osborne St., Bldg. 5, Canoga Park, CA 91304. CP

Hippo Computer Almanac is a collection of interesting facts that users access using a question and answer format. This is a game or toy, not a real almanac. \$34.95. Hippopotamus Software, Suite 12, 985 University Ave., Los Gatos, CA 95030. CP

Infidel is a text adventure in which the player, left alone in the desert, must find and plunder a lost pyramid. Good sentence parser, bad Mac interface, twist ending. \$44.95. Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. CP

Legacy is a two part text/graphic adventure. A magical orb in Drab Castle must be found through the use of spells and careful adventuring. \$39.95. Challenger Software, PO Box 1478, Homewood, IL 60430. CP

Lode Runner is a 150-screen action-strategy challenge that requires a joystick for truly effective play. Move around a grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. \$39.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903. CP

MacAttack puts the player in command of a super tank defending the wastes of Alaska against invaders. This 3D simulation

pits you against attacking tanks and warplanes that fire heat-seeking missiles. Defeat the horde and get treated to a graphic fireworks display over the town. \$49. Miles Computing, Inc., Suite 212, 7136 Haskell Ave., Van Nuys, CA 91406. CP

MacBackgammon with Cribbage provides graphic versions of these classic games. Variable skill levels allow the user to set game difficulty. At the expert level both games will challenge experts. The graphics are attractive but slow the games down quite a bit. \$49. Videx, Inc., 1105 Northeast Circle Blvd., Corvallis, OR 97330. CP

MacChallenger lets players land a space shuttle. The graphics of this flight simulator are crude and it's a hard machine to fly, but it's also a lot of fun. Version 2.0 lets you record your landing attempt (that's what most of them are!) and then review it from any of ten camera angles, a truly unique touch! \$49.95. Aegis Development, Inc., Suite 277, 2210 Wilshire Blvd., Santa Monica, CA 90403. CP

MacCheckers with Reversi will provide a stiff challenge to experts. You can adjust the degree of difficulty to your taste. The graphics and animation are excellent, although slow. The checkers portion can be very hard to beat when the skill level is set to expert. The reversi (which is very similar to Othello) is somewhat easier, even at the expert level. \$49. Videx, Inc., 1105 Northeast Circle Blvd., Corvallis, OR 97330. CP

MacInooga Choo-Choo is a set of electronic toy trains. Run on the layouts provided, or create your own, as complex as you wish. Create scenery using built-in tools or import fancier *MacPaint* scenery. \$39. Fortnum Software, 31 W. Sierra Madre Blvd., Sierra Madre, CA 91024. NCP

MacJack II is a blackjack game pitting users against the house. Includes good graphics, insurance against dealer blackjack, splitting and doubling, and table limit that rises with your stake. The game plays very well, and can be quite addictive. \$39.95. DataPak, Suite 401, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP

MacPoker looks and plays just like *MacJack II*, one player against the house. This format is not as successful or interesting with poker as it is with blackjack. Dealing and play are slow and few playing options are provided. Game is limited to five-card draw. \$39.95. DataPak, Suite 401, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP

MacVegas contains seven complete casino-style games: baccarat, blackjack, craps, keno, poker, roulette and slots. All are fairly standard but generally well designed. House rules can be altered by selecting establishment from a menu. The games are all fun to play, but not particularly absorbing. \$59. Videx, 1105 Northeast Circle Blvd., Corvallis, OR 97330. CP

Make Millions is a fascinating business simulation in which the player competes against the computer to take control of five companies, then run them profitably. Different strategic options and human-seeming associates make simulation more complete. Appeals to the closet capitalist in all of us. \$49.95. Scarborough Systems, Inc., 55 South Broadway, Tarrytown, NY 10591. CP

Millionaire is a financial simulation based on the stock market. "News" affects stock prices, so read it religiously. Turn a pittance into a fortune to win the game. \$49.95. Blue Chip Software, 6740 Eton Ave., Canoga Park, CA 91303. CP

Mind Over Mac features five games, Master Code, Third Dimension, On-The-Contrary, Trivial Intrigue and Destroyer. Entertainment for the whole family. Good graphics paired with synthesized sound and on-screen help (each has a Rule menu). \$49.95. Think Educational Software, 16 Market Street, Potsdam, NY 13676. CP?

Mouse Stampede is an infectious *Centipede*-like game with mice, bats, cheese (normal and moldy), turtles, flies, paint brushes, knives, shopping carts and sneakers on the attack. Activated cats will gobble mice until full. Game is fast-paced, high scoring and generally fun to play. \$39.95. Mark

MINIFINDERS

of the Unicorn, 222 Third St., Cambridge, MA 02142. CP
NewGamon is animated backgammon that will challenge even
 good players. Features include variable skill levels and
 strategies and options to play the Mac or watch the Mac play
 itself. Many positions are included so that you can learn how
 to play them without having to set up a whole game. An
 arcade-like high speed play mode is also included. This is
 the best backgammon player currently available. \$39.95.
 Newsoft, PO Box 4035, Newport Beach, CA 92661. CP

Pensate is a truly mind challenging strategy game with multiple
 levels of difficulty and a play-ahead feature where users
 must plan moves in groups of up to four turns. The graphics
 very well handled and the challenge addicting. \$39.95.
 Penguin Software, PO Box 311, Geneva, IL 60134. CP

Perplexx is a board word game based on *Scrabble*. Players can
 vary the rules and board to suit their tastes and skills. Up to
 four can play and the game can either be an active player or
 a scorer and arbiter. Has a 90,000+ word dictionary and
 good graphics. \$39.95. Hayden Software, Inc., 600 Suffolk
 St., Lowell, MA 01854. CP

Pinball Construction Set lets users create their own pinball
 games, as elaborate or as easy as desired. Uses *MacPaint*
 for backgrounds and has lifelike sounds (on 512K Macs). No
 documentation to speak of. \$40. Electronic Arts, 2755
 Campus Dr., San Mateo, CA 94403. CP

Planetfall leaves users shipwrecked on a seemingly deserted
 planet, with only Floyd the Droid to help figure out how to get
 home. Two possible endings. This full-text game is written in
 a tongue-in-cheek style. \$39.95. Infocom, 125 Cambridge-
 Park Dr., Cambridge, MA 02140. CP

Psion Chess is as good a micro chess player as you'll find. This
 1984 World Micro Champion makes superb use of graphics
 and the Mac interface. Switch between 6 languages for a
 touch of spice. \$59.95. Psion, 40 Lindeman Dr., Trumbull,
 CT 06611. CP

Pyramids of Peril is an action-strategy adventure in which a
 single explorer must unravel the mysteries of the pyramid.
 Computer maps automatically; combat is engaged in with
 the mouse. \$39.95. Aegis Development, Suite 277, 2210
 Wilshire Blvd., Santa Monica, CA 90403. CP

Real Poker is five-card draw against five other players with Old
 West names, distinct personalities and playing styles, in a
 saloon setting. Dealing and play are very fast. Game
 evaluates your hand, suggests cards to keep/discard. Dynamic,
 exciting, addictive game. \$39.95. Henderson Associates,
 #1, 980 Henderson Ave., Sunnyvale, CA 94086. CP

Rogue is a strategy dungeon adventure in which each quest is
 completely different. Randomly generated rooms, monsters
 and treasures keep even veterans on their toes. \$39. Epyx,
 1043 Kiel Court, Sunnyvale, CA 94089. CP

Sargon III is a capable chess program with 9 levels of play,
 problem-solving modes, take back, change color, hint,
 manual play, etc. Easy Play option blocks *Sargon* from
 stealing search time during player's move, effectively doubling
 number of levels. Pieces are moved graphically. Disk
 stores 107 classic games for review and replay. \$49.95.
 Hayden Software, 600 Suffolk St., Lowell, MA 01854. CP

Squire is a financial simulation that features a unique, real-life
 mode that lets you set your own financial goals, then play
 out your strategy using IRAs, stocks, commodities, collect-
 ibles, and property. \$69.95. Blue Chip Software, 6740 Eton
 Ave., Canoga Park, CA 91303. CP

Strategic Conquest is large scale, strategic conflict on the Mac.
 This very involved war game will be enjoyed by those who like
 this genre. \$49.95. PBI Software, 1155B-H Chess Dr.,
 Foster City, CA 94404. CP

Suspended is Infocom's most unique text game. Using a small
 plastic board and six markers, the player keeps track of six
 uniquely designed robots which check on damage to a
 complex's machinery and report back what they perceive as
 the problem. \$49.95. Infocom, 125 CambridgePark Dr.,
 Cambridge, MA 02140. CP

Through the Looking Glass consists of 3 programs by *Finder*
 author Steve Capps. Included are a fast paced arcade game
 based equally on chess and "Alice in Wonderland," the maze
 application from the guided tour disk and a large digital
 clock. \$29.95. Apple computer, 20525 Mariani Ave., Cupertino,
 CA 95014. NCP

Trivia has questions in Sports, History, Geography, Literature, and
 Entertainment, on-line instructions and playing options. Up
 to six players compete. Players set time of response, target
 score for win. Categories limited, questions replay if game
 not saved. \$24.95. Mirage Concepts, #108, 4055 W.
 Shaw, Fresno, CA 93711. CP

Tycoon is a financial simulation based on the ups and downs of
 commodities market. Build a fortune in pork bellies and
 Swiss francs, checking the "Financial Journal" for news
 affecting the market. \$59.95. Blue Chip Software, 6740
 Eton Ave., Canoga Park, CA 91303. CP

Ultima II players take the part of a character who travels through
 land, sea, air, space, and even time itself in a quest to find
 and defeat the evil sorceress Minax. Good Mac interface;
 excellent game: confusing graphics. \$59.95. Sierra, 36575
 Mudge Ranch Rd., Coarsegold, CA 93614. CP

Ultima III allows up to four characters cooperate to explore the
 vast wilderness of Sosaria: dungeons, oceans, and the
 Moon Gates help solve the adventure. Outstanding translation
 of the Apple II smash hit. \$59.95. Origin Systems, 340
 Harvey Rd., Manchester, NH 03103. CP

Universe 2 is the most complete space adventure yet created. It
 has so much data that it requires 3 disks! Good, playable
 game, marred by poor parser in the text adventure sections.
 Requires 512K. \$69.95. Omnitrend Software, PO Box 3, W.
 Simsbury, CT 06092. CP

Webster's Revenge is a *Boggle*-like word search game. Super
 graphics make it a pleasure to play. The dictionary is
 adequate and the user can always overrule it if necessary.
 Multiple skills levels make this a game for all. \$34.95.
 Shapechanger Software, Inc., 113 E. Tyler, Athens, TX
 75751. CP?

Winter Games lets up to eight players compete against each other
 in Olympic events including figure skating, bobsledding,
 biathlon and ski-jumping. Mouse and keyboard controls this
 action game. Excellent animation, good graphics, good
 theme music. \$39. Epyx, 1034 Kiel Ct., Sunnyvale, CA
 94089. CP

The Witness is a full-text adventure casts the player as a detective
 assigned to get to the bottom of a death threat. When the
 victim is killed, you have only one night to find the real guilty
 party. \$39.95. Infocom, 125 CambridgePark Dr., Cam-
 bridge, MA 02142. CP

Wizardry is an outstanding dungeon exploration adventure pitting
 a party of up to six characters against the guardian monsters
 of the evil wizard Werdna. Capture his amulet to earn your
 reward. Even after solving the game, you'll want to go back
 into the dungeon. \$59.95. Sir-Tech Software, 6 Main St.,
 Ogdensburg, NY 13669. CP

Word Challenge is a *Boggle* lookalike. Features multiple (26) skill
 levels and an extensive dictionary. Even "pro" *Boggle*
 players should find a level that will challenge them. New
 version has improved graphics. \$39.95. Hayden Software,
 600 Suffolk St., Lowell, MA 01854. CP

WordPlay is a word game with over 50 crossword puzzles for
 different levels of expertise. User friendly, it offers on-
 screen Help menus. A Work mode allows development of
 new puzzles for the creative. \$49.95. Palantir Software,
 12777 Jones Rd., Suite 100, Houston, TX 77070. NCP

Xyphus is a role-playing game pitting four characters (fighters or
 wizards) against multiple scenarios that grow increasingly
 harder. Excellent Mac interface and icon control. \$39.95.
 Penguin Software, 830 Fourth Ave., Geneva, IL 60134. CP

Zork I is a full-text adventure game that lets players explore a
 strange underground empire. Parser understands full sen-
 tences; players can take many different routes to final



success. Beware of the thief, who steals random objects. The ultimate text game. \$39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

Zork II is where the adventure continues in the underground empire. A wandering wizard keeps things interesting, though there's a way to beat him if you persevere. \$44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

Zork III is the final chapter in the trilogy. Players come up against the ultimate enemy—the Dungeonmaster himself. More closed-ended than previous *Zorks*. \$44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

MUSIC

ConcertWare+ is an enhanced version of *ConcertWare*. Has **||||** different instruments and the ability to use any four of a set of eight at any point in a musical piece. Can read and use *ConcertWare* and *MusicWorks* files. Best program for listening to music on their Mac. \$69.95. Great Wave Software, PO Box 5847, Stanford, CA 94305. NCP

Deluxe Music Construction Set, an active piano keyboard and **||||** instant audio feedback make this program perfect for educational applications, and the advanced notational capabilities will satisfy most advanced musicians. \$50. Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. CP

MusicWorks allows the user to create and play simple musical **||||** compositions. Music entry is by either a grid or a staff and is very easy. Users can select various instruments and modify each to produce new effects. Compositions are limited to 64 measures and overall limitations make this a beginner's program. There are many public domain music files available to play. The manual is clear and thorough. \$79.95. Hayden Software Company, Inc., 600 Suffolk St., Lowell, MA 01854. CP

Professional Composer is aimed at music professionals. **||||** It duces performance-quality sheet music; has only limited playback facilities. \$495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP

HARDWARE & ACCESSORIES

A+ Mouse is a replacement mouse. It works by optical tracking on **||||** a special mousepad. Good choice if the original mouse fails. \$99. Mouse Systems Corp. 2336H Walsh Ave., Santa Clara, CA 95051.

The Easel is a compact and portable carrier for up to 20 disks. Can **||||** be converted into a standup rack for desktop use. Solidly made, attractive and useful. \$19.95. Innovative Technologies, 5731 La Jolla Blvd., La Jolla, CA 92037.

Ergotron is a Mac (and external drive) holder that allows a full **||||** range of swiveling and tilting. Very strong, this well made unit is also very easy to use. Simply raising the Mac 4 inches off the desk results in a more efficient viewing angle for users. \$99.95. Ergotron, Inc., PO Box 17013, Minneapolis, MN 55417.

MacIntizer is a graphics tablet and absolute positioning device **||||** that replaces the mouse. Various scales are possible. \$599. GTCO Corp., 1055 First St., Rockville, MD 20850.

Hard Disk 20 is Apple's entry in the exploding hard disk sweepstakes. This quiet, small unit uses Apple's new Hierarchical File System (HFS). It is a pleasure to use and will perform even better when the new ROMs are available. The lack of utility software (spooler, backup, security) is its only drawback. \$1499. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014.

HyperDrive HD20 is an internal 20-megabyte hard disk. It only **||||** adds about 5 pounds to the Mac's weight. Good, full featured unit with all common utilities: spooler, security program and backup utility. It could use memory a bit more efficiently, and it remains to see how well it will work with Apple's new HFS. \$2195 installed in a 512K Mac. General Computer Company, 215 First St., Cambridge, MA 02142.

MacNifty Stereo Music System converts Mac sounds to simulated stereo by splitting highs and lows between two powerful **||||** speakers. User controls bass, treble, balance, low and high impedance output, and most importantly, volume. Hear your music compositions the way they were meant to be played. \$79.95. Kette Group, 13895 Industrial Park Blvd., Minneapolis, MN 55441.

MacNifty Switch allows any port on your Mac to connect to two **||||** peripherals. Turn the knob to switch between the two devices. Plugs are friction-fit, not screw-fastened like most Mac peripherals, so in some cases they may loosen by themselves. \$34.95. Kette Group, 13895 Industrial Park Blvd., Minneapolis, MN 55441.

MacStation is a compact workstation for a Mac, ImageWriter and **||||** external drive. Made of strong plastic, it is reasonably attractive. Well vented; will not cause a Mac to overheat. Only flaw is that paper feed doesn't really work; users need space behind the unit to store paper. \$95. The MicroRain Corp., PO Box 96008, Bellevue, WA 98009.

MacTablet is a stylus-driven graphics tablet. Users can easily **||||** sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Works well with all Mac software, including *MacDraw* and *MacPaint*. Allows concurrent use of the mouse. \$495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430.

MacVislon is a digitizer that uses an ordinary video camera for **||||** input. Capable of extremely fine results and special effects. Easy to use and well documented. \$399.95. Koala Technologies Corporation, 3100 Patrick Henry Drive, Santa Clara, CA 95052.

Maglc is both the most intimidating and easiest to use digitizer **||||** available. Use a regular video camera for input. Once the crowded screen is mastered, any effect is possible. \$399, \$549 with camera. New Image Technology, Suite 104, 10300 Greenbelt Rd., Seabrook, MD 20706.

MacCharlie is one of the most unusual Mac products imaginable. **||||** Its components slip around the Mac and the keyboard and convert the Mac into an IBM PC clone. Amazingly it works well. The enlarged keyboard has a few bugs but is a joy to use. \$1,195 with 256K RAM and one floppy drive. \$1,895 with 640K RAM and two floppy drives. Dayna Communications, Suite 530, 50 S. Main St., Salt Lake City, UT 84144.

Mousetrak is a fabric covered foam mousing pad. It will increase **||||** the efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desktop environment. \$10. Moustrak, Inc., Suite 503, 1 Weatherly, Mill Valley, CA 94941.

Omni-Reader scans optical character (OCR) text and inputs the **||||** text in Mac software. Requires carefully prepared text and is very slow as the actual scanning is done by hand moving the scan head in a guide over the text. \$799. Oberon International, 5525 McArthur Blvd., Irving, TX 75038.

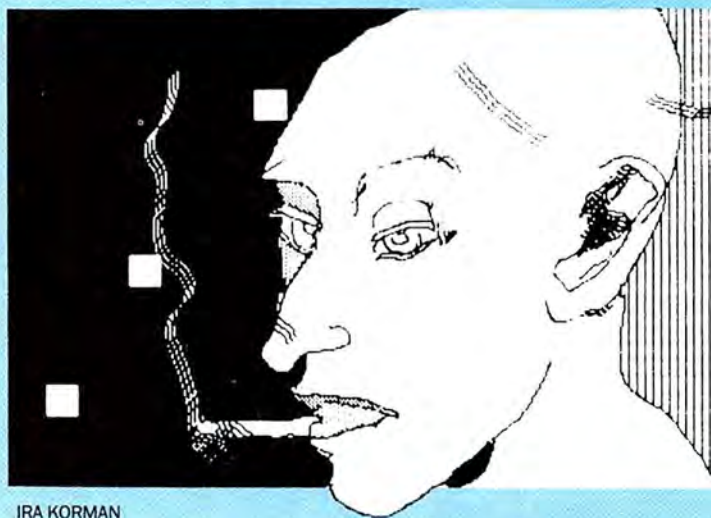
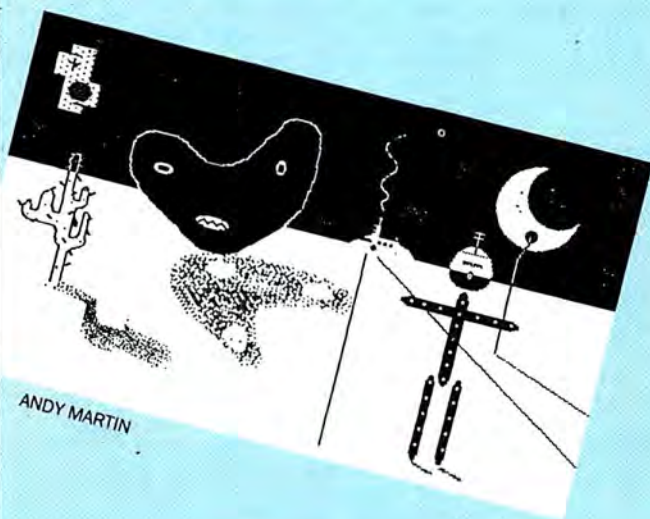
Mac Turbo Touch is a mouse replacement device. Features **||||** include 2.5-inch diameter track ball with control buttons to either side. Users either love it (and refuse to use anything else) or hate it; very few so-so's on this product. Takes a few days to get used to. \$129. Assimilation, Inc., 485 Alberto Way, Los Gatos, CA 95030.

Numeric Turbo combines a track ball with an enhanced numeric **||||** keypad. The keypad includes working cursor keys and other direct function keys that bypass the Mac's Command and Shift keys. The track ball takes some getting used to and some never learn to like it. Those who do rarely ever use a mouse again. \$149. Assimilation, Inc., 485 Alberto Way, Los Gatos, CA 95030.

ThunderScan replaces the ribbon cartridge in an ImageWriter, **||||** which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. Compatible with 15-inch ImageWriter, but not ImageWriter II. Output has been optimized for LaserWriter. \$229. Thunderware, Inc., 21 Orinda Way, Orinda, CA 94563.

PICTURE PALETTE

The Mac is by far the best medium for producing beautiful, high resolution graphics quickly & easily. To kick off our new section, "Picture Palette," we invited some of **MacUser's** contributing artists to dash off a few pretty pictures. Next time, folks, it's your turn! Send your Mac graphics, along with a short description of how you accomplished your results, to **MacUser Palette**, 25 West 39th Street, New York, NY 10018. We'll pay \$25-\$100 for every picture we print, plus we'll print your name, home town, & methods. Show off your talents to the people who count—**MacUser** readers.

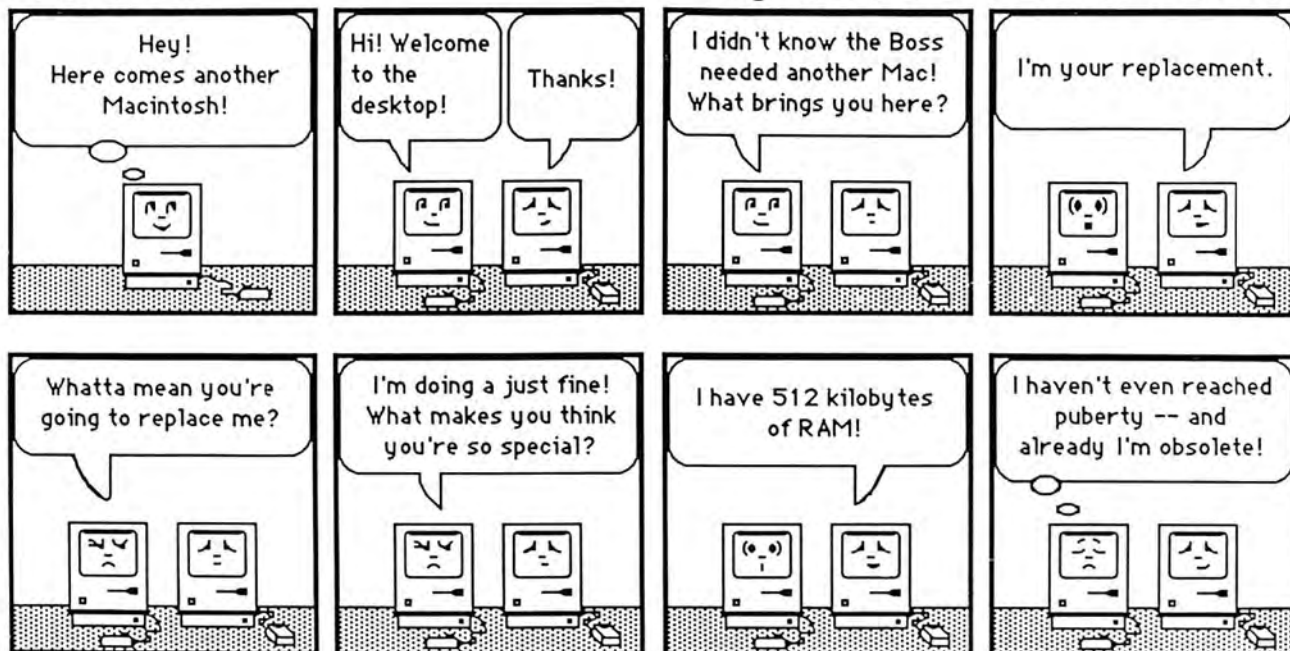


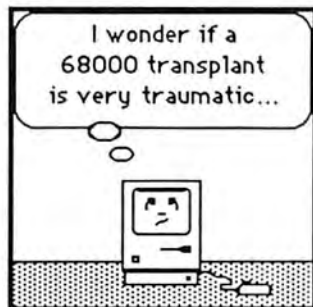
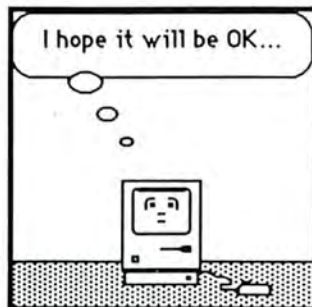
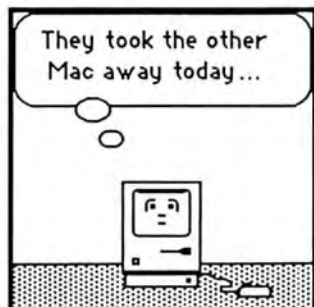
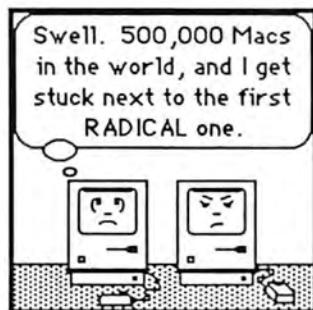
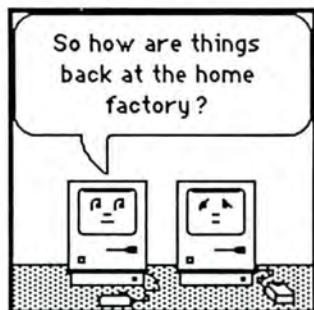
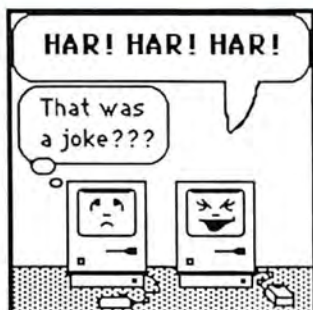
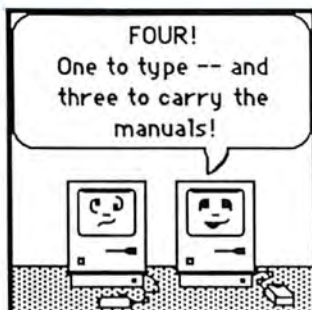
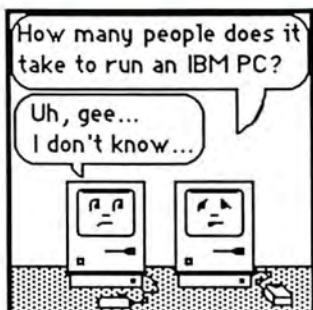
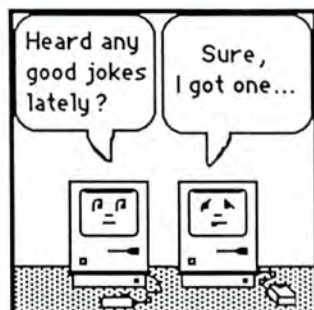
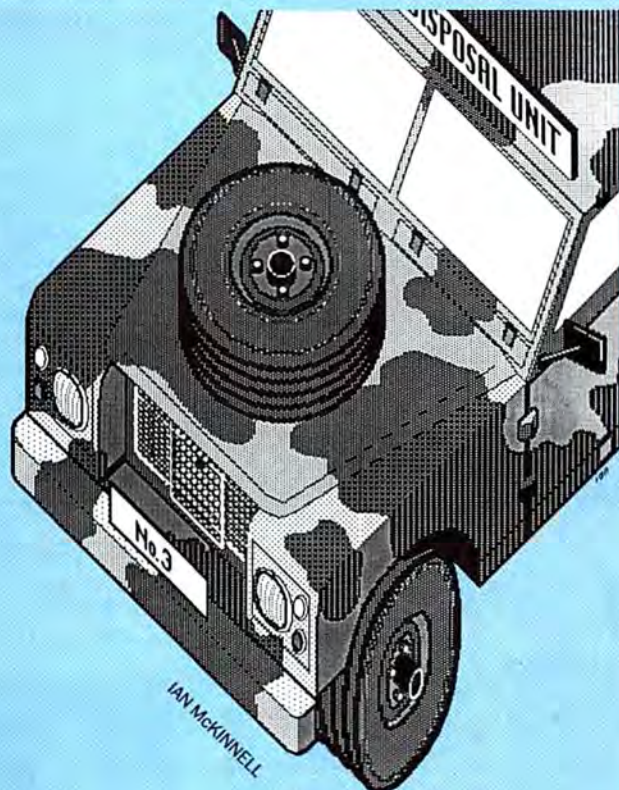
THE LIGHTER SIDE OF THE MACINTOSH

Share your laughs with The Rest of Us! Send in your humor items to **MacFunnies**, MacUser Magazine, 25 W.39th St., New York, NY 10018. We'll pay \$25-\$100 for every item we use, so keep those letters coming.

Macrocosm

by Steve and Michelle Sakurai





BY JOHN C. DVORAK

THE SPREADSHEET SHUFFLE SPELLS DOOM

It was pouring rain when I got the phone call from ace reporter John Markoff. "You know what the big untold story is?" he asked. "There is no more software development being done for the Macintosh. Everyone is working on the Atari or the IBM or they've quit the business. Check it out! *Excel* is the last major product and there's nothing further down the road." He mysteriously hung up the phone.

I scratched my head, wondering what the call was all about. Had Markoff discovered some grim secret? Is it true that there's nothing new on the horizon?

If it's true that the Macintosh now has most, if not all, of the serious software that it will ever have, then there is something terribly wrong with this business. And there may be. And if there is, it's *your* fault.

The microcomputer scene was never healthy until the spreadsheet came along and gave corporate bean-counters the excuse to buy a desktop machine. These sales to accountants, auditors, tax people and planners are the life blood bottom line sales that keep the microcomputer market alive and kicking.

At some point you have to ask yourself: Is that all there is? This is the big question of the decade as far as I'm concerned. Are spreadsheets the only thing that a microcomputer is really good for?

Sure, word processing and lightweight database management show life and perhaps minimalist CAD/CAM software has its place too. But none of these market segments move hardware off the shelf like spreadsheets do.

If we try to understand the elements that came together to make the spreadsheet concept pop into Dan Bricklin's noggin to eventually take on a veritable life of its own, we quickly discover that those same elements are staring us straight in the face on the Macintosh. But instead of saying, "Hey what new

thing can I do with this machine that I could never do before?" we instead say, "I'm going to put the world's greatest spreadsheet on this thing." Hence *Excel*.

The elements available to Bricklin were a programmable machine with a mapped screen and a simple operating system which was designed only to be used by one person.

Just as the Apple II environment was singular so too is the environment of the Macintosh. It's a programmable single user machine but with a graphical orientation and a mouse interface. Surely somebody can do something more profound with the thing than put a whiz-bang spreadsheet on it! But where is that somebody? And where is the product?



Spreadsheets were developed because a versatile tool (an Apple II) was available for the creative process to find a use. The concept of a spreadsheet found the microcomputer. The microcomputer wasn't designed for spreadsheets; it was designed as a neutral tool whose eventual uses would be infinite: a function of creativity and enthusiasm.

Instead of continuing on the original path of finding new, exciting and creative uses for microcomputers, all we get is more bean-counters crying for more spreadsheets. It spells doom for us all if we give in to these dogs of debits and credits.

The Macintosh will simply die a miserable death if it becomes nothing more than another spreadsheet machine. But what else can it do if the new button-down management at Apple and the hordes of gray bureaucrats continue to chant "spreadsheet, spreadsheet, spreadsheet" as they stagger along zombie-like, arms outstretched as though they were

bit players in a remake of *Night of the Living Dead*?

It's a grim thought and I'm not the only one thinking it. Ask most software marketers and they'll tell you that the business has turned into a nightmare, a living hell. Greedy dealers want higher and higher margins as if they can't make enough money taking orders for IBM PC/ATs while sipping coffee in the back room lounge. Distributors want a bigger slice of the pie too! Meanwhile cowboys like Phillippe Kahn and others decide to push the price of software to an all-time low. Now nobody can make any money. And all they hear is the chant: "spreadsheet, spreadsheet, spreadsheet."

It's all your fault! Why? Because it's no longer a sellers' market since the enthusiasm has dried up.


Heck, half the dealers in this country don't even maintain a mailing list of customers. They don't bother. They don't care. How many computer dealers do you know who have volunteered to talk about computers to the school district, the police departments, the fire department, the Lions Clubs, the Rotary or the Senior Citizen Center. None, that's how many.

The snobism is killing us all and the whole thing stinks. Just ask yourself, what have you (the reader) personally done to promote computer use? Like most users, you've probably done nothing but show off the fact that you know the difference between a bit and a byte in hopes that the knowledge would impress some bored female.

Yeah, I know! There are a couple of women who use microcomputers too. What's the total—10, 20? Big deal. Why have women been excluded from the club? Because they don't feel welcome? Because the snobs made it too difficult to get a foothold, *especially* if you're a female? This is funny since at least half of the professional mainframe programmers in the country are women.

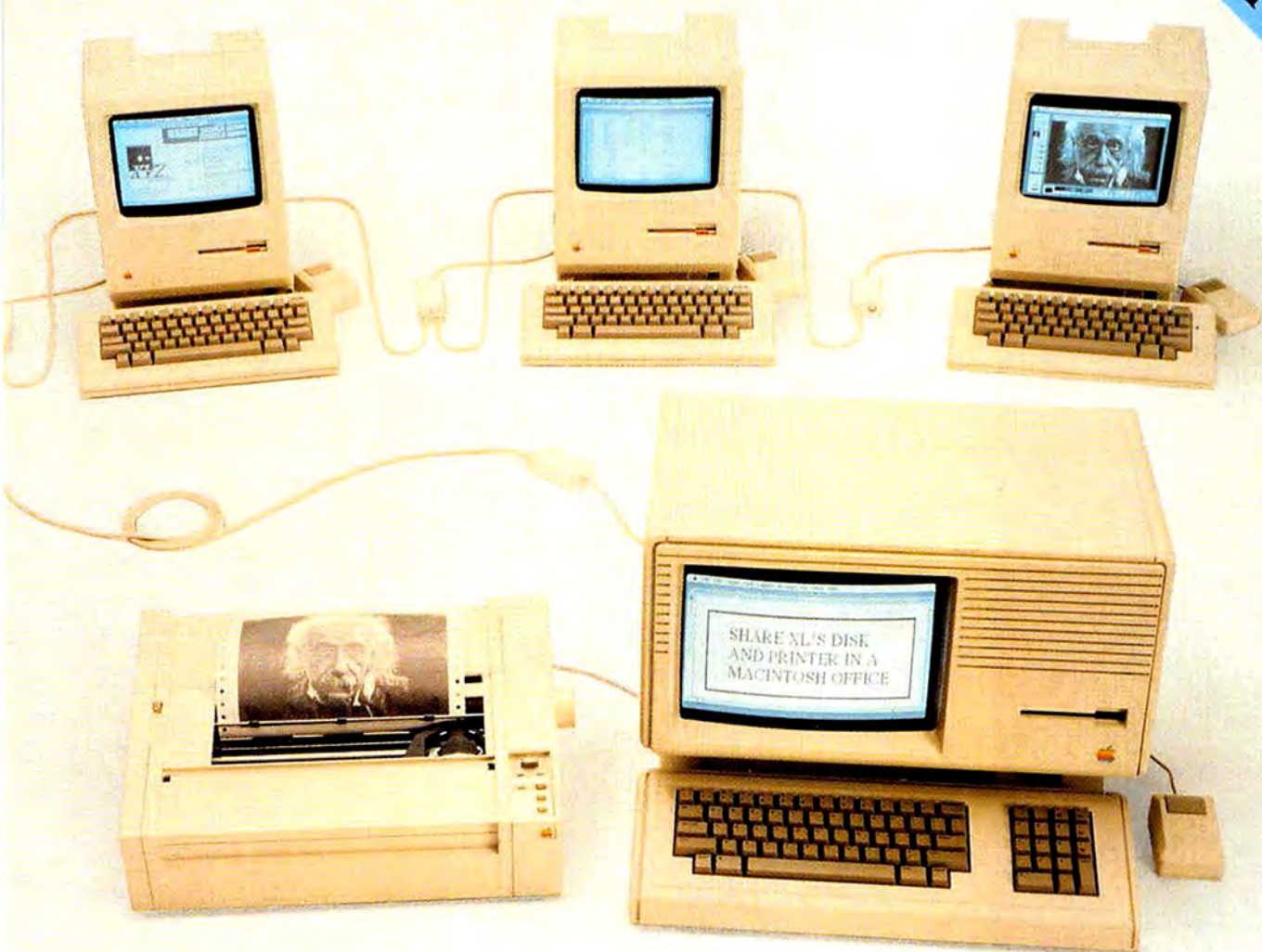
So what gives?

It's time people got off their duffs and promoted the hobby that they are so fond of. The observation that there is nothing in development is a function of the laziness of today's users.

When the scene began in 1975-1976, the users were nuts about their machines and they sung their praises from coast to coast. The old-timers are now hoarse and the young turks have done nothing to take up the slack. This is no time to wimp out and let the bean-counters use the machines for their ill-gotten gain. Get to work! 

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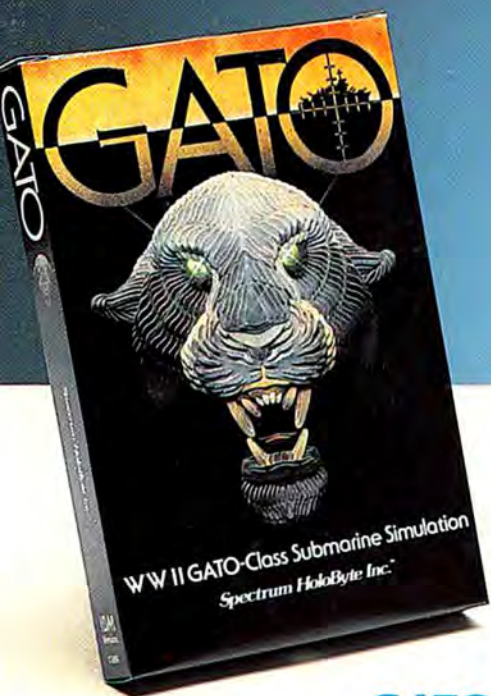
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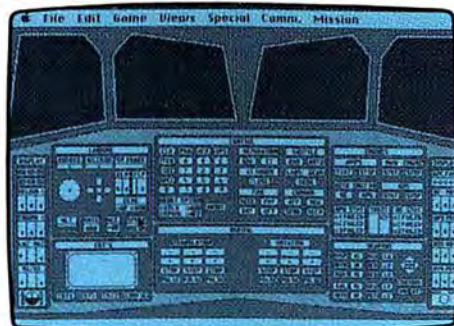
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(IBM requires 128K, color graphics card, graphics monitor, double-sided drive. Apple IIe™ or IIc™ requires 128K, single-sided drive. Joystick optional. Macintosh requires 128K.)



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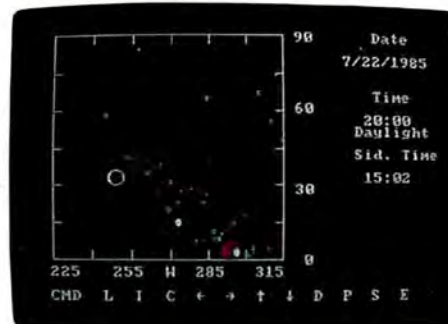
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